GIS BASED TOOL ON INDIAN INDEPENDENCE MOVEMENT 1857-1947

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DEDICATION

I would like to dedicate this thesis to my mother, father, elder brothers, sister-in-laws and friends who always supported, encouraged and stood by me for accomplishing my work. I also want to dedicate this thesis to my Professor Dr. Carl Eckberg.

This thesis is also dedicated to my Grandfather late Krishnarao Kathawate - freedom fighter for India.
ABSTRACT OF THE THESIS

GIS Based Tool on Indian Independence Movement 1857-1947
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The emphasis of the thesis is to build an intuitive and robust GIS (Geographic Information systems) Tool which gives an in depth information on Indian independence movement. The GIS tool also incorporates glory to independence with the support of different political movements, acts and political parties. The user has the option to select these movements and acts by clicking on any of the marked states on the Indian map.

The Indian Map also incorporates key features for Indian independence like the Birth of Gandhi, Lucknow pact etc. The user can know more about these features simply by clicking on each of them. The primary focus of the tool is to give the user a unique insight into India; for this the tool has several HTML (Hypertext markup language) pages which the user can select. These HTML pages give information on various topics like the Indian government, Indian armed forces and judicial system.

The tool has been developed in JAVA. For the Indian map MOJO (Map Objects Java Objects) is used. MOJO is developed by ESRI. The major features shown on the Indian map was designed using MOJO. MOJO made it easy to incorporate the statistical data with these features.

The user interface was intentionally kept simple and easy to use. To keep the user engaged, key aspects are explained using videos and HTML pages. The idea is that pictures and videos will help the user garner interest in the struggle for independence of India against the British.

Being from this culture rich nation I hope this tool does justice in giving people an insight into India and its people and their struggle for Independence.
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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

The intension behind developing this tool is to encourage people to know more about the struggle for Indian independence by the people of India. Being an Indian I chose to learn more about India’s struggle and fight for the independence and wish to share the same knowledge with the world. This map-based tool helps us navigate through the wide range of areas like political organizations, philosophies, revolutionaries and movements which had the common aim of ending the East India company rule and then the British imperial authority from 1857 to 1947. The tool displays different color shades depending on the different campaigns, agitations and events. The application tool has features to provide extensive knowledge of the struggle with images and videos.

1.2 ABOUT THE APPLICATION

JAVA programming language and the Quantum GIS desktop application (for creating shape files) are used to develop the GIS tool. The mapping tools are developed using ESRI (Environmental Science Research Institute) Map Objects Java Edition. This provides flexibility to display different layers on the map. This tool shows the physiography of India which includes a timeline feature to highlight the different aspects of the Indian independence movement. The important aspect of using GIS tool is to analyze the data pattern in a more effective way through mapped data. This allows the user to view and understand the data and patterns through maps, images and videos [1]. Eclipse IDE is used to build the application considering the ease of use and plug-in support which includes java swing in designing timeline, menus and tool bars. [2]

1.3 LIST OF CHAPTERS

- Chapter 2: Design requirements and functionality specifications required for this application.
- Chapter 3: Tools and Technologies: discusses the technology used for developing this application. Java, MOJO, Html, ECLIPSE, Quantum GIS are explained.

- Chapter 4: Struggle for Indian independence. Here we discuss more about the different political organizations, philosophies, revolutionaries, agitations and movements.

- Chapter 5: Software development life cycle or software prototype. Briefly explains which software development life cycle was used to build the application.

- Chapter 6: Architectural design: elaborates on the architecture of the application and high level design of the UI (User interface).

- Chapter 7: Shape file and Layers. Here we discuss how to modify, remove and add the shape files and layers to the application in brief.

- Chapter 8: Tool bars and their design specification. Explains the toolbars available in this application and their significance.

- Chapter 9: User defined menus and their functionality.
CHAPTER 2

DESIGN SPECIFICATIONS

This thesis is an application to learn about the Indian independence movement. This application is designed, developed and implemented under the guidance of Professor Dr. Carl Eckberg, San Diego State University. This application was implemented with an interface which is intended to help the students. The main aim is to make students understand the history of struggle by Indians for Indian independence, just using a few clicks on an application. As we know no topic of discussion can be complete, hence not all data about all agitations, movements and political organizations have been covered, yet this application present most of the important data and features. Following are the list of specifications and requirements to make this tool effective:

- The tool shows the current Indian map.
- The boundaries are marked to distinguish between states.
- Each event has its own shape file and an area of the event where it took place.
- Options to use the hotlink and time line features are implemented.
- One can add new events through shape files can be done if necessary.
- One can edit the contents of each new or existing shape fields.
- One can display all event information including pictures and videos to date.
- Hotlink can give brief information about the layer, when you click on an event.
- The tool is designed in a way that it gives vital information including pictures and videos for all events like movements and incidents.
- The application is re-usable and simple, with easily loadable test.
- Since JAVA is platform independent, it is used along with MOJO to develop this application.
CHAPTER 3

TECHNOLOGIES

Carefully chosen were the set of software tools and technologies, listed below, for the development of the tool after analyzing the pros and cons of each tool to produce a user friendly and effective software application.

3.1 JAVA

Java technology includes Java platform and Java programming language. The Java programming language is an object-oriented programming language widely used in today’s world in developing web-applications, mobile applications, games and enterprise software. The Java platform provides an environment to run the applications built using the Java programming language. Java provides developers an option of “write once, run anywhere” i.e., Java programs compiled on one machine can be run on any other machine without recompiling. Java programs are compiled to a byte-code representation (.class file) and then interpreted by the machine-specific Java virtual machine (JVM) to run the program [3].

Eight major versions of the Java programming language have been released to date, Java 1.7 being the latest. Java programming language has two parts:

- JRE (Java Runtime Environment) that allows us to be able to run any java application (web or standalone). JRE installation includes JVM, Java core and platform libraries.
- JDK (Java Development Kit), which includes java compiler and debugger, has to be installed along with JRE to be able to develop any java application.

Java platform is a software platform that runs on top of other hardware platforms [4] and it consists of two major components, namely:

- JVM (Java Virtual Machine)
- Java API (Application Programming Interface) - a collection of many software components referred to as packages.
- Some of the reasons for Java being popular are:
- Portability - Java program written and compiled in one environment can be run on any other hardware or operating system making it portable. This is possible
because of its intermediate byte-code representation that can be interpreted by any JVM. JVM is operating system-specific.

- **Object-Oriented** - Importance is given to the data and the methods operating on the data rather than the procedures. Java comes with a set of libraries that contains ready-to-use classes or functionality.

- **Distributed** - Java is used in distributed applications because of its features such as multi-threading, concurrency, suitableness for network-based applications, high performance and its support for RPC and EJB.

- **High-performance** - Java is one of the fastest programming languages because of its built in support for multithreaded environments. Eg: JRockit, HotSpot; GIS benefits greatly from the use of threads.

- **Secure** - Java is built for network-based applications and hence highly secure for advanced application environment. This is achieved through Java’s memory allocation model; the use of access specifiers for data and byte-code is always verified before compiling.

- **Simple** - Java programming language comes packaged with ready to use software components and the syntax is easy even for developers with C/C++ background. The programmer does not have to worry about memory as Java performs garbage-collection. It does not make use of unions, structs or pointers.

Thus there are many advantages about Java as a platform, and it makes sense for developers to use the Java platform for many projects.

### 3.2 MapObjects - Java Edition

According to Victoria Kouyoumjian, ESRI's MapObjects product manager, "MapObjects--Java Standard Edition provides an extensive Java-based application programming interface for developers to build client geographic-based display, query, and data retrieval applications" [5].

MOJO is an abbreviation for Map Objects Java Edition released by ESRI. It is basically used to build customized GIS applications which work on all platforms. MapObjects has more than 900 Java components that can be used for building a robust GIS application that can create and display any graphic features [6]. It provides many Layer implementations to deal with different data such as:

- Feature Layer to access vector data
- Image Layer to access raster data
- Image Server Layer to access image service [5]
3.3 FEATURES OF MOJO

- Can be used in desktop applications, applets and in server-side environments.
- It comes packaged with inbuilt JavaBeans components and hence can be integrated with Eclipse easily.
- Can access any GIS data source with the ability to combine many data sources - local, internet and intranet.
- Useful for creating customized maps.
- Compatible with multiple data source formats such as image-formats, industry standard shape files.
- Provides tools for adding graphical features.
- Can be used to dynamically add data on the maps.
- Offers very good documentation with a starters guide.
- Since this is java based all Javas latest API packages offer unlimited customization [6].

3.4 ECLIPSE IDE

Eclipse IDE (Integrated Development Environment) is a Software Development Environment and comprises of a base workspace and plug-ins to customize the software development environment. All programming languages use different IDE [7].

Eclipse was initially developed by the source community for Java and Android and is one of the leading development environments. The JDT project provides the tool plug-ins that implement a Java IDE supporting the development of any Java application.

Advantages of using Eclipse:

- User Interface makes the development environment easier to access all project files.
- Importing and exporting a project is simple.
- Code Completion: A lot of code writing is avoided by a simple tab, instead of referring to the extensive documentation available to implement methods.
- Getters and Setters: Creating getters and setters is a click away.
- Syntax checking is simple and any errors are indicated in red and warning in yellow.
- Refactoring: Renaming of global variables across the project is simpler.
• Adding a clean and fast debugging tool with step-by-step break points.
• Plug-ins makes it simpler to program in many different languages.
• It is integrated with a version control system, making it easier to maintain code.
• UI development environment makes it easier to access all project files [8].

The GUI (Graphical User Interface) uses Java Swing. The project includes a Java GUI widget tool kit that is included as part of the project in Eclipse which allows the developer to create labels, buttons, checkboxes, dialogues and others more easily.

This thesis project is developed using Eclipse IDE, ESRI MOJO jar files imported into the main application project and the Java programming language. Java swing is used to create 90-95% of the application UI which includes login screen, the main application containing toolbars, menu options and all the dialogue which pops out on errors or displaying more information about the application.

3.5 HTML, JavaScript and CSS

HTML, Hypertext Markup Language is just a plain text file which is either saved as ‘.html.’ or ‘.htm’. This file contains small code snippets embedded inside different HTML tags, deciding how the content should be rendered to the user over a webpage. The HTML tags are placed inside angle brackets within which lies the content of the webpage and also these tags are placed in pairs marking the starting and the end point.

Any document can be structured with heading, anchors, lists, sub-lists, tables, paragraphs and other features using HTML. Another advantage of using html in any document would be the use of embedding video, audio and 2d graphic animations; web pages like these could be designed and put to good use using HTML.

Now that we know how a document can be rendered the next step would be to know how to make this document user friendly and interactive. This can be achieved using JavaScript which accesses all the contents on the rendered screen and dynamically updates and re-renders the screen contents. The JavaScript is usually written between tags <script>…. </script> and this can be included in HTML file or can be written as a separate file with ‘.js’ extension.

The most important feature of a webpage is presentation; this is taken care by CSS (Cascading Style Sheets), Like JavaScript this can also be part of the main page alongside
HTML tags defining how it should be rendered (color, font, size etc.), or can be written into a separate ‘.css’ file which helps for better readability and brevity.

### 3.6 DBF EXPLORER

DBF Explorer is a free software tool available for editing the dbf (database) files, which contain the non-locational fields for a layer. This software allows opening a dbf file for a map layer and allows the user to edit, add, and delete the contents, columns and its structure. Shape files can also be created using this tool by simply providing a CSV file, any number of columns can be added by specifying its data type [9].

### 3.7 QUANTUM GIS DESKTOP

Quantum GIS (QGIS) is an Open Source Geographic Information System (GIS) that runs on a number of platforms. It is similar to the DBF Explorer tool discussed above. But in QGIS we can create polygons, lines and points on the map making it a decent user friendly interface to develop and create shape files [10].

All the shape files in this application were designed using QGIS. The User Interface is easy to use and can be used to create attribute tables for a selected shape file. The fields can be added, deleted and edited at ease. A sample snapshot of the map and shape files is included in the home page of the main HTML file created in this application.
CHAPTER 4

OVERVIEW

This chapter summarizes major events in India’s history that are germane to the quest for independence.

4.1 1857: SEPOY MUTINY

In the most recent British acquisition of all, the kingdom of Awadh (Oudh) was annexed in 1856, not only was the ruler deposed but many landowners lost control over what they regarded as their estates. Taxes were high throughout the region, and there were few opportunities for enterprising to make a profit. Western influences were limited in the towns, but the first Christian missions had appeared there, and new colleges had opened, which seemed to be an unwelcome intrusion to many devout Hindus and Muslims. They also fed fears of a Christian offensive and of forced conversions [11].

Northern India had a long tradition of spasmodic disorder and resistance to government. These upheavals would probably have become more intense in the mid-19th century, but could have been contained if the British had not alienated a group of people on whom their security depended. These people were the soldiers, or sepoys, of the Bengal army, whose mutiny eventually set off the 1857 rebellion [11].

The Bengal army was recruited not from Bengal itself but from northern India, especially from Awadh. To be a soldier in the Bengal army had become an occupation to which high status was attached. The sepoys saw themselves as an élite. Over many years the Bengal army had fought faithfully for the British, but on their own terms. They would not go overseas and they required an elaborate train of camp followers, and by 1857 the British high command was losing patience with this [11].

Supplies of more flexible soldiers who would not stand on their privileges were becoming available in Nepal and the Punjab, and the Bengal army was told it must modernise - by accepting obligations to serve outside India, and by using a new rifle. The spark that ignited the soldiers' great fear - that their cherished status was to be undermined - was the
rumour concerning the use of pig and cow fat, forbidden in the Muslim and Hindu religions respectively, as lubricant on the cartridges for the new rifles. Cantonment after cantonment rebelled. When the soldiers refused to acknowledge British authority, the way was left open for disaffected princes and aristocrats, and for village and town people with grievances, to revolt alongside the soldiers [11].

4.2 1857: DISARMING ACT

The uprising against the British was evidenced at Halagali (Mudhol taluk of Bagalkot district). The prince of Mudhol, Ghorpade had accepted British overlordship. But the Bedas (hunters), a martial community, were seething with dissatisfaction under the new dispensation. The British proclaimed the Disarming Act of 1857 whereby men possessing fire arms had to register them and secure a license before 10 November 1857. Babaji Nimbalkar, a soldier thrown out of job from Satara Court, had advised these people not to lose their hereditary right to own arms.

One of the leaders of the Bedas, Jadgia was invited by the administrator at Mudhol and was persuaded to secure a license on 11 November, though Jadgia had not asked for it. The administrator’s expectation that others would follow Jadgia was belied. So he sent his agents to Halagali on 15, 20 November and again on 21. But the entreaties of the agents did not succeed, and the agents sent on 21 November were attacked by Jadgia and Baalya, another leader and they were forced to return. Another agent sent on 25 November was not allowed to enter the village.

Meanwhile, the Bedas and other armed men from the neighbouring villages of Mantur, Boodni and Alagundi assembled at Halagali. The administrator reported the matter to Major Malcolm, the Commander at the nearby army headquarters, who sent Col. Seton Karr to Halagali on 29 November [12].

The insurgents, numbering 500 did not allow the British to enter Halagali. There was a fight during the night. On 30 November, Major Malcolm came with 29th Regiment from Bagalkot. They set fire to the village and many insurgents, including Babaji Nimbalkar died. The British, who had a bigger army and better arms arrested 290 insurgents; and of these 29 were tried and 11 were hanged at Mudhol on 11 December, and six others, including Jadagia and Baalya were hanged at Halagali on 14 December 1857. No prince or jagirdar was
involved in this uprising, but it was the common soldiers. Violent revolutionary activities never took firm root in South India. The only violent act attributed to the revolutionaries was the assassination of Collector of Tirunelveli (Tinnevelly). On 17 June 1911, the Collector of Tirunelveli, Robert Ashe was killed by R. Vanchi Aiyer, who subsequently committed suicide. This was the only instance of a political assassination by a revolutionary in South India [12].

4.3 1858: BRITISH RULE UNDER QUEEN

After the rebellion had been put down, the new royal government of India that replaced that of the East India Company promised that it had no intention of imposing 'our convictions on any of our subjects'. It distanced itself further from the Christian missionaries. A stop was put to the deposing of princes, and greater care was shown to the rights of landlords. The major part of the army was in future to be drawn from so-called 'martial races'. The huge parades, or durbars, at which the new empress of India received the allegiance of the hierarchies of traditional India through her viceroy, seemed to symbolise the new conservatism of the regime [11].

Yet beneath the trappings of conservatism, Indian society changed much more rapidly in the second half of the 19th century than it had done in the first. The British had much more to offer Indians. Imports of Western technology had been limited before the 1850s. Thereafter a great railway system was constructed - 28,000 miles of track being laid by 1904 - and major canal schemes were instituted that more than doubled the area under irrigation in the last 20 years of the century. The railways, the vastly increased capacity of steamships, and the opening of the Suez Canal linked Indian farmers with world markets to a much greater degree. A small, but significant, minority of them could profit from such opportunities to sell surplus crops and acquire additional land. Some industries developed, notably Indian-owned textile manufacturing in western India. The horrific scale of the famines of the 1880s and 1890s showed how limited any economic growth had been, but the stagnation of the early 19th century had been broken [11].

Universities, colleges and schools proliferated in the towns and cities, most of them opened by Indian initiative. They did not produce replica English men and women, as Macaulay had hoped, but Indians who were able to use English in addition to their own
languages, to master imported technologies and methods of organization and who were willing to adopt what they found attractive in British culture. The dominant intellectual movements cannot be called Westernization. They were revival or reform movements in Hinduism and Islam, and were the development of cultures that found expression in Indian languages [11].

Within the constraints of a colonial order, a modern India was emerging by the end of the 19th century. British rule of course had an important role in this process, but the country that was emerging fulfilled the aspirations of Indians, rather than colonial designs of what a modern India ought to be [11].

4.4 1876: INDIAN NATIONAL ASSOCIATION

Its origins are from the Zamindari Sabha (Association) founded by Dwarkanath Tagore and his cousin Prasanno Kumar Tagore in 1831, and the Adi Brahmo Sabha founded in 1843. In 1851 it took shape as the British Indian Association with Debendranath Tagore as its Honorary Secretary. In 1857 the Association supported the East India Company in the Sepoy Mutiny, calling for stern punishment for the rebels. In 1866 Pandit Navin Chandra Roy was appointed Secretary of the Association, a post which he held for 4 years, before he finally moved to Lahore in the course of his employment. Ramanath Tagore was the President from 1867 to 1877. After a stormy meeting in 1870 a resolution moved by nationalist Adi Dharma faction of Baboo Hemendranath Tagore was approved to voice the concerns of educated Indians to the British authorities on issues of discrimination, participation of Indians in the Indian Civil Service, and the political empowerment and representation of Indians. This resulted in a split, whereby Freemason Crown loyalists formed a breakaway association called the Indian Reform Association under Keshub Chunder Sen to "uplift the common people but only give them political representation when they are ready for it". In 1871 a branch was established by Adi Dharm faction in Oudh (modern Lucknow) by Dakshinaranjan Mookerjee for demanding Indian elected representation in legislatures [13].

The Reform Association faction on July 26, 1876 established a Bharat Sabha with Bengali leaders like Surendranath Banerjee, Sivanath Sastri, Ananda Mohan Bose etc. and held its first annual conference in Calcutta. Initially under Sen it was pro-Crown. However,
after the 2nd Brahmo Schism of 1878, the Sadharan Brahmo Samaj regrouped with Adi Brahmo Samaj to promote nationalism and freedom from British rule. From 1880 till 1890 a bitter battle for control of the Reform Association ensued between the pro-Sen and anti-Sen factions. After the death of Sen in 1884 the Reform Association also passed fully into the hands of Brahmo Samaj by 1885 allowing all the Brahmo factions (i.e. Adi Brahmo Samaj, Adi Dharm Sabha, Sadharan Brahmo Samaj, Prarthana Samaj) to form in 1885 the Indian National Congress which has ruled present day India for most of its independent history [13].

4.5. 1885: INDIAN NATIONAL CONGRESS

Founded upon the suggestion of British civil servant Allan Octavian Hume, the Congress was created to form a platform for civic and political dialogue of educated Indians with the British Raj. After the First War of Indian Independence and the transfer of India from the East India Company to the British Empire, it was the goal of the Raj to support and justify its governance of India with the aid of English-educated Indians, who would be familiar and friendly to British culture and political thinking. Ironically, a few of the reasons the Congress grew and survived in the era of undisputed British hegemony, was through the patronage of British authorities, Anglo-Indians and a rising Indian educated class. The theory of safety valve has also been associated with the birth of congress. It says that congress provided a platform to Indians to bring out their resentment vocally. Its initial aim was to divert the minds of Indians from any sort of physical violence [14].

Hume embarked on an endeavor to get an organization started by reaching-out to selected alumni of the University of Calcutta, writing in his 1883 letter that, "Every nation secures precisely as good a Government as it merits. If you the picked men, the most highly educated of the nation, cannot, scorning personal ease and selfish objects, make a resolute struggle to secure greater freedom for yourselves and your country, a more impartial administration, a larger share in the management of your own affairs, then we, your friends, are wrong and our adversaries right, then are Lord Ripon's noble aspirations for your good fruitless and visionary, then, at present at any rate all hopes of progress are at an end and India truly neither desires nor deserves any better Government than she enjoys" [14].

In May 1885, Hume secured the Viceroy's approval to create an "Indian National Union", which would be affiliated with the government and act as a platform to voice Indian
public opinion. On 12 October 1885, Hume and a group of educated Indians also published "An Appeal from the People of India to the Electors of Great Britain and Ireland" to ask British voters in 1885 British general election to help support candidates sympathetic to Indian public opinion, which included opposition to the levying of taxes on India to finance the British Indian campaigns in Afghanistan and support for legislative reform in India. The appeal was a failure, and was interpreted by many Indians as "a rude shock, but a true realization that they had to fight their battles alone." On 28 December 1885, the Indian National Congress was founded at Gokuldas Tejpal Sanskrit College in Bombay, with 72 delegates in attendance. Hume assumed office as the General Secretary, and Womesh Chandra Bonnerjee of Calcutta was elected President. Besides Hume, two additional British members (both Scottish civil servants) were members of the founding group, William Wedderburn and Justice (later, Sir) John Jardine. The other members were mostly Hindus from the Bombay and Madras Presidencies [14].

4.6 1905: PARTITION OF BENGAL

In July 1905, Lord Curzon, the Viceroy and Governor-General (1899–1905), ordered the partition of the province of Bengal supposedly for improvements in administrative efficiency in the huge and populous region. It also had justifications due to increasing conflicts between Muslims and dominant Hindu regimes in Bengal. However the Indians viewed the partition as an attempt by the British to disrupt the growing national movement in Bengal and divide the Hindus and Muslims of the region. The Bengali Hindu intelligentsia exerted considerable influence on local and national politics. The partition outraged Bengalis. Not only had the government failed to consult Indian public opinion, but the action appeared to reflect the British resolve to divide and rule. Widespread agitation ensued in the streets and in the press, and the Congress advocated boycotting British products under the banner of swadeshi. Hindus showed unity by tying Rakhi on each other's wrists and observing Arandhan (not cooking any food). During this time Bengali Hindu nationalists begin writing virulent newspaper articles and were charged with sedition. Brahmabhandav Upadhyay, a Hindu newspaper editor who helped Tagore establish his school at Shantiniketan, was imprisoned and the first martyr to die in British custody in the 20th century struggle for independence [15].
4.7 1906: ALL INDIA MUSLIM LEAGUE

The formation of a Muslim political party on national level was seen as essential by 1901. The first stage of its formation was the meeting held at Lucknow in September 1906, with participation of representatives from all over India. The decision for re-consideration to form the all Indian Muslim political party was taken and further proceedings were adjourned until the next meeting of All India Muhammadan Educational Conference. The Simla Deputation reconsidered the issue in October 1906 and decided to frame the objectives of the party on the occasion of the annual meeting of Educational Conference; that was later, scheduled to be held at Dhaka. Meanwhile Nawab Salimullah Khan published a detailed scheme through which he suggested the party to be named All India Muslim Confederacy. Pursuant upon the decisions taken earlier in Lukhnow meeting and later in Simla; the annual meeting of All India Muhammadan Educational Conference was held at Dhaka that continued from 27 December, until 30 December 1906. that was headed by both Nawab Waqar-ul-Mulk and Nawab Muhasan-ul-Mulk (the Secretary of the Muhammeden Educational Conference); in which he explained its objectives and stressed the unity of the Muslims under the banner of an association [8]. It was formally proposed by Nawab Salimullah Khan and supported by Hakim Ajmal Khan, Maulana Muhammed Ali Jauhar, Zafar Ali Khan, Syed Nabiullah Bar at Law Lucknow and syed Zahur Ahmad an eminent lawyer and several others. The Founding meeting was hosted by Nawab Sir Khwaja Salimullah and attended by three thousand delegates, while Ameer Ali, Sir Mian Muhammad Shafi were also the founding fathers who attended this meeting. The name “All India Muslim League” was proposed by Sir Agha Khan III who was appointed its first president. The League's constitution was framed in 1907 in Karachi” [16].

4.8 1916: LUCKNOW PACT

Refers to an agreement reached between the Indian National Congress and the Muslim League at the joint session of both the parties, held in Lucknow, in the year 1916. Muhammed Ali Jinnah, then a member of the Congress as well as the League, made both the parties reach an agreement to pressure the British government to adopt a more liberal approach to India and give Indians more authority to run their country, besides safeguarding basic Muslim demands. After the unpopular partition of Bengal, Jinnah approached the
League to make it more popular among the Muslim masses. Jinnah himself was the mastermind and architect of this pact. Due to the reconciliation brought about by Jinnah between the Congress and the League, the Nightingale of India, Sarojini Naidu, gave him the title of “the Ambassador of Hindu-Muslim Unity” [17].

The Lucknow Pact also established cordial relations between the two prominent groups of the Indian National Congress – the "hot faction" garam dal led by Bal Gangadhar Tilak, and the moderates or the "soft faction", the naram dal led by Gopal Krishna Gokhale.

Main features:

- The same method should be adopted for the Executive Councils of Governors.
- The India Council must be abolished.
- The salaries of the Secretary of State for Indian Affairs should be paid by the British government and not from Indian funds.
- Of the two Under Secretaries, one should be Indian.
- The executive should be separated from the judiciary.
- The number of Muslims in the provincial legislatures should be laid down province by province.
- There shall be self govt. in India.
- Muslims should be given 1/3 representation in Central Govt.
- There should be separate electorates for all communities until they ask for joint electorate.
- System of weight-age should be adopted.
- Term of Legislative Council should be 5 years.
- Half of the members of Imperial Legislative Council must be Indians [17, 18].

4.9 1919: JALLIANWALA BAGH MASSACRE

The Jallianwala Bagh massacre (also known as the Amritsar massacre), was a seminal event in the British rule of India. On 13 April 1919, a group of non-violent protesters, along with Baishakhi pilgrims, had gathered in the Jallianwala Bagh garden in Amritsar, Punjab. On the orders of Brigadier-General Reginald E. H. Dyer, the army fired on the crowd for ten minutes, directing their bullets largely towards the few open gates through which people were trying to run out. The dead numbered between 370 and 1000. The "brutality stunned the entire nation", resulting in a "wrenching loss of faith in Britain’s good intentions". The
ineffective inquiry and the initial accolades for Dyer by the House of Lords fueled widespread anger, leading to the Non-cooperation movement of 1920-22 [19, 20].

Some historians consider the episode as a decisive step towards the end of British rule in India, although others believe that greater self-government was inevitable as a result of India's involvement in World War I.

4.10 1920: FIRST NON-COOPERATION MOVEMENT

At the Calcutta session of the Congress in September 1920, Gandhi convinced other leaders of the need to start a non-cooperation movement in support of Khilafat as well as for swaraj (self rule). The first satyagraha movement urged the use of khadi and Indian material as alternatives to those shipped from Britain. It also urged people to boycott British educational institutions and law courts; resign from government employment; refuse to pay taxes; and forsake British titles and honors. Although this came too late to influence the framing of the new Government of India Act 1919, the movement enjoyed widespread popular support, and the resulting unparalleled magnitude of disorder presented a serious challenge to foreign rule. However, Gandhi called off the movement following the Chauri Chaura incident, which saw the death of twenty-two policemen at the hands of an angry mob [21].

Membership in the party was opened to anyone prepared to pay a token fee, and a hierarchy of committees was established and made responsible for discipline and control over a hitherto amorphous and diffuse movement. The party was transformed from an elite organization to one of mass national appeal and participation [21].

Gandhi was sentenced in 1922 to six years of prison, but was released after serving two. On his release from prison, he set up the Sabarmati Ashram in Ahmedabad, on the banks of river Sabarmati, established the newspaper Young India, and inaugurated a series of reforms aimed at the socially disadvantaged within Hindu society — the rural poor, and the untouchables.

This era saw the emergence of new a generation of Indians from within the Congress Party, including C. Rajagopalachari, Jawaharlal Nehru, Vallabhbhai Patel, Subhas Chandra Bose and others- who would later on come to form the prominent voices of the Indian
independence movement, whether keeping with Gandhian values, or, as in the case of Bose's Indian National Army, diverging from it [21].

The Indian political spectrum was further broadened in the mid-1920s by the emergence of both moderate and militant parties, such as the Swaraj Party, Hindu Mahasabha, Communist Party of India and the Rashtriya Swayamsevak Sangh. Regional political organisations also continued to represent the interests of non-Brahmins in Madras, Mahars in Maharashtra, and Sikhs in Punjab. However, people like Mahakavi Subramanya Bharathi, Vanchinathan and Neelakanda Brahmachari played a major role from Tamil Nadu in both freedom struggle and fighting for equality for all castes and communities [21].

4.11 1925: KAKORI CONSPIRACY

The Kakori conspiracy (also called the Kakori train robbery or Kakori Case, was a train robbery that took place between Kakori and Alamnagar, near Lucknow, on 9 August 1925 during the Indian Independence Movement against the British Indian Government. The robbery was organised by the Hindustan Republican Association [22].

Four German made Mausers pistols were used by the conspirators. The robbery was conceived by Ram Prasad Bismil and Ashfaqullah Khan who belonged to the Hindustan Republican Association (HRA), which became later the Hindustan Socialist Republican Association. This organisation was established to carry out revolutionary activities against the British Empire in India with the object of achieving independence. Since the organization needed money for purchase of weaponry, and rich people of society were not helping them due to fear of the government, Bismil and his party decided to plunder a train on one of the Northern Railway lines [1]. The robbery plan was executed by Ram Prasad Bismil, Ashfaqulla Khan, Rajendra Lahiri, Chandrashekhar Azad, Sachindra Bakshi, Keshab Chakravarthy, Manmathnath Gupta, Murari Sharma (fake name of Murari Lal Gupta), Mukundi Lal (Mukundi Lal Gupta) and Banwari Lal [22].

Four persons were executed in the Kakori Conspiracy: Rajendra Lahiri, Ashfaqulla Khan, Pandit Ram Prasad Bismil and Thakur Roshan Singh [22].
4.12 1928: CALL FOR PURNA SWARAJ
Following the rejection of the recommendations of the Simon Commission by Indians, an all-party conference was held at Bombay in May 1928. This was meant to instill a sense of resistance among people. The conference appointed a drafting committee under Motilal Nehru to draw up a constitution for India. The Calcutta session of the Indian National Congress asked the British government to accord dominion status to India by December 1929, or a countrywide civil disobedience movement would be launched. By 1929, however, in the midst of rising political discontent and increasingly violent regional movements, the call for complete independence from Britain began to find increasing grounds within the Congress leadership. Under the presidency of Jawaharlal Nehru at its historic Lahore session in December 1929, the Indian National Congress adopted a resolution calling for complete independence from the British. It authorised the Working Committee to launch a civil disobedience movement throughout the country. It was decided that 26 January 1930 should be observed all over India as the Purna Swaraj (total independence) Day. Many Indian political parties and Indian revolutionaries of a wide spectrum united to observe the day with honour and pride [21].

4.13 1929: CENTRAL ASSEMBLY BOMB CASE
Bhagat Singh and Batukeshwar Dutt threw a bomb in the assembly house along with leaflets stating their revolutionary philosophy – 'to make the deaf hear'. Bhagat Singh, Sukhdev and Rajguru were hanged and several other faced the verdict of imprisonment. Batukeshwar Dutt outlived all his comrades and died in July 1965 in Delhi. All of them cremated in Ferozpur (Punjab, India) [12].

Baikuntha Shukla, the great nationalist was hanged for murdering Phanindrananth Ghosh who had become a government approver which led to hanging of Bhagat Singh, Sukhdev and Rajguru. He was a nephew of Yogendra Shukla. Baikunth Shukla was also initiated into the freedom struggle at a young age taking active part in the 'Salt Satyagraha' of 1930. He was associated with revolutionary organisations like the Hindustan Seva Dal and Hindustan Socialist Republican Association. The execution of the great Indian revolutionaries Bhagat Singh, Rajguru and Sukhdev in 1931 as a result of their trial in the 'Lahore conspiracy case' was an event that shook the entire country. Phanindra Nath Ghosh,
hitherto a key member of the Revolutionary Party had treacherously betrayed the cause by
turning an approver, giving evidence, which led to the execution. Baikunth was
commissioned to plan the execution of Ghosh as an act of ideological vendetta which he
carried out successfully on 9 November 1932. He was arrested and tried for the killing.
Baikunth was convicted and hanged in Gaya Central Jail on 14 May 1934. He was only 28
years old [12].

On 27 February 1931, Chandrasekar Azad shot himself when cornered by the police.
It is unclear of the eventual fate of the Association, but the common understanding is that it
disbanded with the death of Chandrashekar Azad and the hanging of its popular activists:
Bhagat Singh, Sukhvdev and Rajguru [12].

4.14 1930: DANDI MARCH (SALT MARCH) AND CIVIL
DISOBEDIENCE MOVEMENT

The Salt March, also mainly known as the Salt Satyagraha, began with the Dandi
March on 12 March 1930, and was an important part of the Indian independence movement.
It was a direct action campaign of tax resistance and nonviolent protest against the British
salt monopoly in colonial India, and triggered the wider Civil Disobedience Movement. This
was the most significant organised challenge to British authority since the Non-cooperation
movement of 1920–22, and directly followed the Purna Swaraj declaration of independence
by the Indian National Congress on 26 January 1930.

Mohandas Karamchand Gandhi (commonly called Mahatma Gandhi) led the Dandi
march from his base, Sabarmati Ashram near Ahmedabad, to the coastal village of Dandi,
located at a small town called Navsari, in the state of Gujarat. As he continued on this 24-
day, 240-mile (390 km) march to produce salt without paying the tax, growing numbers of
Indians joined him along the way. When Gandhi broke the salt laws at 6:30 am on 5 April
1930, it sparked large scale acts of civil disobedience against the British Raj salt laws by
millions of Indians [23].

4.15 1931: BHAGAT SINGH’S EXECUTION

Bhagat Singh, Rajguru and Sukhdev were sentenced to death in the Lahore
conspiracy case and ordered to be hanged on 24 March 1931. That schedule was moved
forward by 11 hours and he was hanged on 23 March 1931 at 7:30 pm in Lahore jail with his
comrades Rajguru and Sukhdev. It is reported that no magistrate of the time was willing to supervise his hanging as was required by law. The execution was supervised by an honorary judge, who also signed the three death warrants as their original warrants had expired.

In the 29 March 1931 issue of Young India, Gandhi wrote:

Bhagat Singh and his two associates have been hanged. The Congress made many attempts to save their lives and the Government entertained many hopes of it, but all has been in vain. Bhagat Singh did not wish to live. He refused to apologize, or even file an appeal. Bhagat Singh was not a devotee of non-violence, but he did not subscribe to the religion of violence. He took to violence due to helplessness and to defend his homeland. In his last letter, Bhagat Singh wrote, “I have been arrested while waging a war. For me there can be no gallows. Put me into the mouth of cannon and blow me off." These heroes had conquered the fear of death. Let us bow to them a thousand times for their heroism. [24]

But we should not imitate their act. In our land of millions of destitute and crippled people, if we take to the practice of seeking justice through murder, there will be a terrifying situation. Our poor people will become victims of our atrocities. By making a dharma of violence, we shall be reaping the fruit of our own actions. Hence, though we praise the courage of these brave men, we should never countenance their activities. Our dharma is to swallow our anger, abide by the discipline of non-violence and carry out our duty."

4.16 1935: GOVERNMENT OF INDIA ACT

The Government of India Act 1935 was originally passed in August 1935 (25 & 26 Geo. 5 c. 42), and is said to have been the longest (British) Act of Parliament ever enacted by that time. Because of its length, the Act was retroactively split by the Government of India (Reprinting) Act 1935 (26 Geo. 5 & 1 Edw. 8 c. 1) into two separate Acts:

- The Government of India Act 1935 (26 Geo. 5 & 1 Edw. 8 c. 2)
- The Government of Burma Act 1935 (26 Geo. 5 & 1 Edw. 8 c. 3)

References in literature on Indian political and constitutional history are usually to the shortened Government of India Act 1935 (i.e. 26 Geo. 5 & 1 Edw. 8 c. 2), rather than to the text of the Act as originally enacted. After all, there are five aspects of every Government worth the name:

- The right of external and internal defense and all measures for that purpose;
- The right to control our external relations;
- The right to control our currency and exchange;
• The right to control our fiscal policy;
• The day-to-day administration of the land….

(Under the Act) You shall have nothing to do with external affairs. You shall have nothing to do with defense. You shall have nothing to do, or, for all practical purposes in future, you shall have nothing to do with your currency and exchange, for indeed the Reserve Bank Bill just passed has a further reservation in the Constitution that no legislation may be undertaken with a view to substantially alter the provisions of that Act except with the consent of the Governor-General…. there is no real power conferred in the Centre.’ (Speech by Mr Bhulabhai DESAI on the Report of the Joint Parliamentary Committee on Indian Constitutional Reform, 4 February 1935). [25]

4.17 1942: QUIT INDIA MOVEMENT

The Quit India Movement (Bharat Chhodo Andolan) or the August Movement was a civil disobedience movement in India launched on 9 August 1942 in response to Gandhi's call for immediate independence of India and against sending Indians to World War II. He asked all teachers to leave their schools, and other Indians to leave their respective jobs and take part in this movement. Due to Gandhi's political influence, his request was followed by a massive proportion of the population. At the outbreak of war, the Congress Party had during the Wardha meeting of the working-committee in September 1939, passed a resolution conditionally supporting the fight against fascism [26], but were rebuffed when they asked for independence in return. In March 1942, faced with an increasingly dissatisfied sub-continent only reluctantly participating in the war, and deteriorations in the war situation in Europe and South East Asia, and with growing dissatisfactions among Indian troops—especially in Europe— and among the civilian population in the sub-continent, the British government sent a delegation to India under Stafford Cripps, in what came to be known as the Cripps' Mission. The purpose of the mission was to negotiate with the Indian National Congress a deal to obtain total co-operation during the war, in return of progressive devolution and distribution of power from the crown and the Viceroy to elected Indian legislature. However, the talks failed, having failed to address the key demand of a timeframe towards self-government, and of definition of the powers to be relinquished, essentially portraying an offer of limited dominion-status that was wholly unacceptable to the Indian movement. To force the British Raj to meet its demands and to obtain definitive word on total independence, the Congress took the decision to launch the Quit India Movement [27].
The aim of the movement was to bring the British Government to the negotiating table by holding the Allied War Effort hostage. The call for determined but passive resistance that signified the certitude that Gandhi foresaw for the movement is best described by his call to Do or Die, issued on 8 August at the Gowalia Tank Maidan in Bombay, since renamed August Kranti Maidan (August Revolution Ground). However, almost the entire Congress leadership, and not merely at the national level, was put into confinement less than twenty-four hours after Gandhi's speech, and the greater number of the Congress khiland were to spend the rest of the war in jail [27].

On 8 August 1942, the Quit India resolution was passed at the Bombay session of the All India Congress Committee (AICC). The draft proposed that if the British did not accede to the demands, a massive Civil Disobedience would be launched. However, it was an extremely controversial decision. At Gowalia Tank, Mumbai, Gandhi urged Indians to follow a non-violent civil disobedience. Gandhi told the masses to act as an independent nation and not to follow the orders of the British. The British, already alarmed by the advance of the Japanese army to the India–Burma border, responded the next day by imprisoning Gandhi at the Aga Khan Palace in Pune. The Congress Party's Working Committee, or national leadership was arrested all together and imprisoned at the Ahmednagar Fort. They also banned the party altogether. Large-scale protests and demonstrations were held all over the country. Workers remained absent en masse and strikes were called. The movement also saw widespread acts of sabotage, Indian under-ground organisation carried out bomb attacks on allied supply convoys, government buildings were set on fire, electricity lines were disconnected and transport and communication lines were severed. The disruptions were under control in a few weeks and had little impact on the war effort. The movement soon became a leaderless act of defiance, with a number of acts that deviated from Gandhi's principle of non-violence. In large parts of the country, the local underground organisations took over the movement. However, by 1943, Quit India had petered out [27].

4.18 1943: INDIAN NATIONAL ARMY

The Indian National Army (INA) was an armed force formed by Indian nationalists in 1942 in Southeast Asia during World War II. The aim of the army was to secure Indian independence with Japanese assistance. Initially composed of Indian prisoners of war
captured by Japan in the Malayan campaign and at Singapore, it later drew volunteers from Indian expatriate population in Malaya and Burma. The INA was also at the forefront of women's equality and the formation of a women's regiment, the Rani of Jhansi regiment was formed as an all-volunteer women's unit to fight the British occupiers as well as provide medical services to the INA [28].

4.19 1946: CABINET MISSION OF INDIA

The British Cabinet Mission of 1946 to India aimed to discuss and plan for the transfer of power from the British Government to Indian leadership, providing India with independence. Formulated at the initiative of Clement Attlee, the Prime Minister of the United Kingdom, the mission consisted of Lord Pethick-Lawrence, the Secretary of State for India, Sir Stafford Cripps, President of the Board of Trade, and A. V. Alexander, the First Lord of the Admiralty. Lord Wavell, the Viceroy of India, did not participate.

The Mission's purpose:
- Hold preparatory discussions with elected representatives of British India and the Indian states in order to secure agreement as to the method of framing the constitution.
- Set up a constitution body.
- Set up an Executive Council with the support of the main Indian parties.

The Mission held talks with the representatives of the Indian National Congress and the All-India Muslim League, the two largest political parties in the Constituent Assembly of India. The two parties planned to determine a power-sharing arrangement between Hindus and Muslims to prevent a communal dispute, and to determine whether British India would be better-off unified or divided. The Congress party under Gandhi-Nehru nexus wanted to obtain a strong central government with more powers compared to state governments. The All India Muslim League under Jinnah, wanted to keep India united but with political safeguards provided to Muslims such as 'guarantee' of 'parity' in the legislatures. This stance of the League was backed up by the wide belief of Muslims that the British Raj was simply going to be turned into a 'Hindu Raj' once the British departed; and since the Muslim League regarded itself as the sole spokesman party of Indian Muslims, it was incumbent up on it to take the matter up with the Crown. After initial dialogue, the Mission proposed its plan over the composition of the new government on May 16, 1946 [29].
4.20 1947: COMPLETE INDEPENDENCE

The Indian Independence Act 1947 was as an Act of the Parliament of the United Kingdom that partitioned British India into the two new independent dominions of India and Pakistan. The Act received the royal assent on 18 July 1947, and Pakistan came into being on August 14 and India on August 15, as two new countries [30].

4.21 IMPACT

The end of the World War II was initiated many major political changes. India and neighboring countries such as Burma, Pakistan, and Bangladesh gained independence from Britain just as the Philippines become independent of the United States of America in 1946/47. Yet this was also the period of Russian expansion and the creation of the Soviet Empire, which subjugated many countries including newly freed from German control. Thanks to Dr. Carl Eckberg, San Diego State University, for providing information on how Philippines became independent of United states.
CHAPTER 5

SOFTWARE PROTOTYPE

Software prototype is an important part of a software development process. It is a sequence of revision and draft versions of the final outcome of the application. A prototype in the development process serves multiple purposes. It drives the development process in a direction and gives a perspective into the difficulties ahead. It invites feedbacks from both supervisors and students.

Software prototype serves as an initial model which is refined along the development process to meet the requirements. The precursor to the development of software prototype is to gather requirements and specifications. Prototyping is part and parcel of agile software development [8].

The initial prototype for this application was developed as shown in the Figures 5.1 and 5.2. The application is provided with a login page for the user to enter the application. The initial application launch preview has the user interface as shown in Figure 5.3 and 5.4. The application had the following features:

- The application displays events such as non-cooperation movement, Disarm act, 1857 Mutiny etc.
- Each event includes information, pictures and videos if applicable.
- The custom tool bar and menu to add, delete and to label the map layers.
- Time line feature for navigation.

At every stage in the development process there was a scope for improvement to include more information and to provide better knowledge to the user. Hence the application is refined to develop a final effective tool which includes all the information for a complete understanding about the Indian independence movement. The final application is shown in the later chapters.
Figure 5.1. Login screen: gateway to application.

Figure 5.2. Security alert incorrect login credentials.
Figure 5.3. Slider pop-up.
Figure 5.4. Application start-up screen.
CHAPTER 6

ARCHITECTURAL DESIGN

This chapter will give us the architecture details of this application to know about Indian independence movement from 1857 to 1947. The architecture will show the software components involved in this application, and the interaction between the different components.

Architecture is the fundamental organization of a system embodied in its components, their relationships to each other, and to the environment, and the principles guiding its design and evolution [31]. It serves as a blue print indicating what tasks and development have to be done. In other words it is an early analysis of the end product and designing structural models to it. Figure 6.1 shows the architecture diagram for the GIS based tool implemented as part of this thesis project.

![High level software architecture diagram.](image)

Figure 6.1. High level software architecture diagram.
CHAPTER 7

SETUP DEVELOPER’S ENVIRONMENT

As we discussed earlier the Eclipse IDE is a robust development environment. We will see how to set up Eclipse IDE and integrate MOJO to it. Install Eclipse IDE from the Eclipse website [7]. Install the Map Objects Java Edition. Then we integrate the MOJO to Java by importing the ESRI Map Objects Libraries. We need to import only two libraries which are sufficient enough for the development of this application. The jar files required are shown in the Figure 7.1 and 7.2.

Figure 7.1. Adding ESRI library.

Figure 7.2. Importing MOJO jar files to Eclipse.
CHAPTER 8

SHAPE FILES

This chapter explains in brief how a user can create and modify shape files using the Quantum GIS (QGIS) tool. Once the Shape files are created they can be easily imported into the application. MOJO Map Objects provides a set of predefined methods to import these map layers.

8.1 HOW TO CREATE SHAPE FILES

Quantum GIS (QGIS) is an open source tool available which helps in creating shape files. All shape files in this application were designed using QGIS. We have already discussed on how to set up the QGIS tool, below is a brief introduction to how the shape files were created using the this tool [10].

8.2 CREATING SHAPE FILES

- Open QGIS Desktop version 1.8
- Create a new Project (File -> New Project)
- Click on the new shape file icon as shown in Figure 8.1, and name the layer.
- It opens a Dialogue which allows the user to add attributes into the attribute field for the shape file being created.
- As shown in Figure 8.2, we add a new attribute called name of type Text Data [32].
- As shown in Figure 8.3, we can toggle editing shape file.

![Figure 8.1. Adding a new layer – to create ShapeFile.](image-url)
Figure 8.2. Adding a new attribute.

Figure 8.3. Toggle editing (edit mode).
CHAPTER 9

TOOLBAR & ITS SIGNIFICANCE

Toolbars are key components in any Application designed for user interaction. Including tool bars and making them self-explanatory in any application is absolute, since these provide a higher interaction level with the application. MOJO provides toolbars and the ones which are used in this application are ‘ZoomPan toolbar’, ‘Selection toolbar’ and ‘Custom Toolbar’. We will have a detailed description about these tools and their significance in this application. The toolbars are described as follows [3].

9.1 ZOOMPAN TOOLBAR

ZoomPanToolBar provides basic functionality required in this application. The important tools here are ‘Zoom in’, ‘Zoom out’ and ‘identify’. See the Figure 9.1 for details of the each tool in ZoomPanToolBar.

![Figure 9.1. ZoomPan toolbar.](image)

9.2 SELECTION TOOLBAR

Selection Toolbar is another tool bar which is enabled only when a layer is selected or active. This tool bar mainly used for selecting required features from the map. We will look at the details of tools in the selection toolbar. The tool is as shown in the Figure 9.2.

![Figure 9.2. Selection toolbar.](image)

This tool bar is used when we want to create a new shape file, query the attributes and to view the attributes table for a map layer [4].
WORKS CITED


