**Chapter 1: Introduction *(16 Times New Roman)***

* 1. **Overview *(14 Times New Roman)***

We need to know how to file a cybercrime complaint in India online & offline and where to report cybercrime in India. Cyber cell is a place where we can register our complaints against any crime or fraud done through internet or technology. The cyber cell departments are accessible in almost every state, ready to deal with cyber complaints in India. Since the numbers of reports for cybercrime complaints online or offline have been increasing heavily in India, therefore, cyber cell departments and the cyber police have identified various types of complaints***.(12 Times New Roman)***

**1.2** **Existing System**

The lots of data on paper/register documents are generated in the organisation about client complaint and its resolutions by gathering information from various sources needed to categorised and sorted out so that many operations can be performed on it and these data can be processed which takes lots of time due to not having required kind of application system.

**1.3** **Problem Statement**

This problem is based on Cyber Cell, which includes registering the new complaints on paper are needed to be handled, arranged, extracted, precise in systematic manner. The progress and action taken on complaints Cyber Cell and accessing information in more precise and accurate information is always required for time utilisation purpose in processing data. In order to actions taken on particular complaints investigations by cyber cell organisation, punishment for cybercrime, the first & foremost step is to lodge complaints against the crime. It is needed to file a written complaint with the cyber cell. In the written complaint, along with needed to provide your name, contact details, and address for mailing and other purposes. The problem of complex functions and large memory space is also identified to resolve it with simple, convenient, less memory required as well as user-friendly application. Along with application system able to persist its data to file and via database solution. Data and its behaviour needs to categorised and properly managed in system so that anything retrieval needed at any point of time can be done easily and quickly in less time.

**1.4 Proposed System**

The project focused on three aspects: ATM relevant bank complaints, Job oriented online complaints, Social media complaints. In this extracting named entities from narrative complaints, then action based on it by cyber cell for each type of complaints. Also awareness creation can be taken from solved complaints that will reduce the number of upcoming complaints. Java is very popular language which is used for design and develops back-end source code in Cyber Cell Modernization Application System. In this application system, extracting named entities from narrative complaints, then action based on it by cyber cell for each type of complaints are handled in designed and implemented in the application using Java language. Convenience and practical approach is mainly considered in the design of the screens interface layouts. All the basic functions for the complaints in application, display list of complaints and all other functions according to research results of the project demand. Performance on the basis of data categorised in application for complaints of cyber cell will be enhanced. The agile methodology used in this project application development. The further section of this will provide more glance of the problem identification, proposed system, solution brief description, need and scope with background details identified.

**1.5 Need and Scope**

With the development of technology and the advancement of widespread use of the internet, cybercrime has become a real threat to society. With increase in number of cybercrime, no of complaints registered are also increasing. Cyber Cell is organisation where these complaints are registered and an action on it occurs. At Cyber Cell, the requirement of such system was always there. With requirements of Cyber Cell, the application system is proposed.

The Cyber Cell Modernisation System considers these 4 principles-Detect, Deter, Protect, Adapt.

**1.6** **Report Organisation**

* Chapter 1 states the overview of the project with discussing about the discussing about the existing systems in today’s scenario. Describing about the problem statement we are facing about the system. We have given our proposed solution considering all the shortcoming of the previously used system.
* Chapter 2 states the literature survey i.e. the background details of our system including the software engineering paradigm and explaining about the technologies ( Software and Hardware requirement ) which we have used building the system.
* Chapter 3 states about the Analysis of the whole system i.e. identification of system requirement about the feasibility study-Technical Feasibility, Financial Feasibility, operational Feasibility.
* Chapter 4 states about the Design of the whole system including all the UML diagrams all the tools used with ER Diagram and Data Flow Diagram and Data Dictionary.
* Chapter 5 states about the whole code of the system, java code , typescript ,html ,css scripts and its integration and adaptability.
* Chapter 6 states the Testing phase of our system all the different testing methods and strategies and we have run test cases.
* Chapter states the conclusion of the whole system explaining the advancement of our project in future.
* References: The books, websites, journals, blogs which we have referred.

**Chapter 2: Literature Survey**

**2.1 Study**

1. As we all know that in many areas customized application software’s are required to solve organisational day to day activities.
2. Such customization is framed with help of completed domain analysis of the functionalities performed at organisation at regular basis which can be solve with help of application software by reducing manual efforts.
3. Among the difficulties faced by people of organisation by lots of paper work and searching for data, arranging them and solving complaints, some centralised solutions needed in such busy environment.
4. This kind of application software’s is ready to welcome to automate the process to reduce manpower and time consumed for that manual process.
5. The main aim is to satisfy the user of application and also reduce time spent on the manual process which is to complete the cycle of registering complaints, processing it and reaching to solutions.
6. Our ultimate motto is to mitigate the time consumption in processing of complaints and eliminate the paper work of searching/ sorting for information from distributed places, thereby accomplishing both organisation user and complainant citizen demands.

**2.2 Problem Methodology**

The agile methodology for this project application development provides alternative to traditional methods of project management such as the waterfall methodology. The agile way promotes adaptive planning, evolutionary development and continuous improvements. This is iterative and flexible approach can be used in solving complexity in researching for project. According to the research results of project demand,, the basic requirements of project system and its function structure as user login for registering data of complaints of Cyber Cell according to entities identified, then processing it according to its type and details are accumulated. The complete managing application for complaints of Cyber Cell as describe in the research of the system problem through different angles.

**2.3 Software Engineering Paradigm**

The principle of software design mainly includes the following:

1. Reliability: The reliability of the software design must be determined. The reliability of the software refers to the ability to avoid fault occurred in the process of system running, as well as the ability to remedy troubles once the fault occurs.
2. Reusability: Commonness of similar codes, and come out new method abstractly and reasonably. Prefer for more generic design.
3. Understand ability: The understand ability of software not only require clear and readable document, but the simplified structure of the software itself, which requires the designer possess keen insight and creativity, and know well about the design objects.
4. Simple program: To keep the program simple and clear, good programmers can use simple program to solve complex problems.
5. Testability:Testability means that the created system has a proper data collection to conduct a comprehensive test of the entire system.

**2.4 Software Development Life Cycle**

A software development methodology is an outline or frame work to plan and control the process of developing a software application. The methodology for every project is designed to suite the specific needs of each project. The Modified Waterfall Model allows a return to a previous phase for verification or validation, ideally confined to connecting steps. So this project purpose, we made use of modified waterfall model for software development methodology.

The systems development life cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study through maintenance of the completed application.

I implemented Waterfall model in this project. The whole process is divided into phases. Typically, the output of one phase act as an input for the next phase sequentially.

**2.4 Technology Methodology**

**2.4.1 Hardware Requirements**

The used hardware for development of application system:

1. RAM: 16 GB
2. Processor: i5 8th generation

**2.4.2 Software Requirements**

The required software for development environment:

* Windows XP onwards(Used Windows 10 Pro)
* Postgresql for database support(Used version 14)
* Java Development Kit(JDK)(Used version 11.0.13.0)
* Eclipse IDE Environment(Used version 2021-09 (4.21.0))
* Spring Tool Suite (STS) plug-in for the Eclipse IDE that is designed to give powerful, integrated environment which build Java Spring Boot Applications.
* Node js (Used version 16.13.0) for Angular (Used version 12.2.11) UI development.
* Visual Studio Code (Used version 1.63.2) for Angular UI development.