

Generally, many crimes seen by the public will not reach to the police due to many reasons like fear, Lack of time, Ignorance. Due to this reason many cases are not even reaching the police station. Though some cases are registered they are not investigated properly due to lack of evidences and Cooperation of the public. This software helps the public to report about the crimes to the police without any fear in correct time. This is helpful to police in solving the cases. This is also helpful for higher authorities of police to have an overview about the progress of the investigation.

With ECOPS, the exchange of information with in police stations and other senior police officers in the departments is faster. It also streamlines the workflow in police department machinery. A central database permits the police units to operate more efficiently leading to speedy detection of crime and prosecution monitoring. The senior police officers of the state can access the reports, which allow them to take quick and timely decisions. Crime analysis reports will enable the senior police officers to observe the crime trends and to guide the investigating officers.



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My areas of interest are Internet of Things (IoT), Smart Cities, Edge Computing, Fog Computing and other similar technologies.



E-Cops

Anonymous Policing From Home!

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ABSTRACT

Generally, many crimes seen by the public will not reach to the police due to many reasons like fear, Lack of time, Ignorance. Due to this reason many cases are not even reaching the police station. Though some cases are registered they are not investigated properly due to lack of evidences and Cooperation of the public. This software helps the public to report about the crimes to the police without any fear in correct time. This is helpful to police in solving the cases. This is also helpful for higher authorities of police to have an overview about the progress of the investigation.

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1.1 INTRODUCTION

Generally many crimes seen by the public will not reach to the police due to many reasons like fear, Lack of time, Ignorance. Due to this reason many cases are not even reaching the police station. Though some cases are registered they are not investigated properly due to lack of evidences and Cooperation of the public. This software helps the public to report about the crimes to the police without any fear in correct time. This is helpful to police in solving the cases .This is also helpful for higher authorities of police to have an overview about the progress of the investigation. An online solution is very useful as the solution is inherently distributive. This distributive characteristic of the online solution helps in getting the different police stations to share information and get in contact with one another.

With ECOPS, the exchange of information with in police stations and other senior police officers in the departments is faster. It also streamlines the workflow in police department machinery. A central database permits the police units to operate more efficiently leading to speedy detection of crime and prosecution monitoring. The senior police officers of the state can access the reports, which allow them to take quick and timely decisions. Crime analysis reports will enable the senior police officers to observe the crime trends and to guide the investigating officers. The technological benefits of ECOPS are to maintain information, monitor and enhance the performance of the department, to take a critical look at the existing system, processes and procedures of the department so as to identify and remove the redundancy.

ECOPS is envisaged to reduce the fair amount of paper work and helps in the automatic maintenance of registers and generation of reports, data analysis, better planning and coordination, timely decision and speedy detection of crime and prosecution monitoring. All these factors have contributed to a higher moral of the police officials at all the levels in police department. The case registered at one police station can be tracked at any police station. This reduces the discretionary dependence of police. Once the case is registered the investigation and follow up activities relating to the case cannot be delayed. The grievances handling is more efficient. Now, the citizens will have access to senior officers through the web. ECOPS introduced transparency and accountability in the whole system.

1.1.1 Need for Computerization

- i. Duplication of work avoided
- ii. Paper work is drastically reduced
- iii. Retrieval and access of data is easy

1.1.2 High-Level Project Goals

- i. Improve efficiency in police department
- ii. Availability of online police service to citizens
- iii. Availability of data to senior officials for quick decision making
- iv. Better administration

1.2 MODULES

1.2.1 User

User can send the complaints to police and they can view the complaint report. User can perform these tasks only when he logins to his account otherwise he has to register his new account. Police send the status report to the users based on their investigation. The user can check the status of their complaints with the help of complaint id given. The user can register his complaints to the police and view the thieves' information.

1.2.2 Administrator

Higher authorities like VIP'S, CP, and DCP can view the complaints which are sent by the public. The administrator has to login with their account in order to perform his actions. They can send alert messages to the police department regarding any future complications. The administrator can also send cautions to the users. Unlike police who can view complaints specific to his area the administrator can view the complaints universally.

1.2.3 Police Department

Basing on the complaints given by the public, police can view them and take appropriate action timely. The police has to login with their account to view the complaints and to send the status of the complaints to the users. They can update the status of the complaint basing on the progress of investigation. They will also receive alerts from the higher authorities regarding warnings and can take action in advance.

1.3 OBJECTIVE

Generally many crimes seen by the public will not reach to the police due to many reasons like fear, Lack of time, Ignorance. Due to this reason many cases are not even reaching the police station. Though some cases are registered they are not investigated properly due to lack of evidences and Cooperation of the public. This software helps the public to report about the crimes to the police without any fear in correct time. This is helpful to police in solving the cases .This is also helpful for higher authorities of police to have an overview about the progress of the investigation.

ECOPS is an online reporting service to which the internet user can report crimes committed on or through the Internet. The impact of IT and communications is traversing at a fast pace. As information for the department is crucial, an enterprise IT tool for enhancing the performance of the police officials became necessary called ECOPS or E-Computerized Operations for Police Services, the main purpose is to maintain information, monitor and enhance the performance of the department.

The focus of ECOPS is to computerize the activities of controlling crime, administration and support services across the state in an integrated fashion so as to enable the division heads and senior officers to obtain the relevant information. Besides, it is also envisaged to reduce dependence on paper and help in automatic maintenance of registers and generation of reports, data analysis, better planning and coordination, speedy detection of crimes and monitoring the prosecutions.

1.4 EXISTING SYSTEM

The normal public in India are afraid to give a complaint in police station because they are filled with a false fear about the police department. An online complaint registering system will solve the fears of public and will also help the police department in catching criminals.

1.5 PROPOSED SYSTEM

An online solution is very useful as the solution is inherently distributive. This distributive characteristic of the online solution helps in getting the different police stations to share information and get in contact with one another. Information about the criminals and the police is also made available to the people in this system.

REQUIREMENT ANALYSIS

2.1 SYSTEM ANALYSIS

System Analysis is the detailed study of the various operations performed by the system and their relationships within and outside the system. Analysis is the process of breaking something into its parts so that the whole may be understood. System analysis is concerned with becoming aware of the problem, identifying the relevant and most decisional variables, analyzing and synthesizing the various factors and determining an optional or at least a satisfactory solution. During this a problem is identified, alternate system solutions are studied and recommendations are made about committing the resources used to the system.

2.2 FEASIBILITY STUDY

A feasibility analysis usually involves a thorough assessment of the operational (need), financial and technical aspects of a proposal. Feasibility study is the test of the system proposal made to identify whether the user needs may be satisfied using the current software and hardware technologies, whether the system will be cost effective from a business point of view and whether it can be developed with the given budgetary constraints. A feasibility study should be relatively cheap and done at the earliest possible time. Depending on the study, the decision is made whether to go head with a more detailed analysis.

When a new project is proposed, it normally goes through feasibility assessment. Feasibility study is carried out to determine whether the proposed system is possible to develop with available resources and what should be the cost consideration. Facts considered in the feasibility analysis were

- i. Technical Feasibility
- ii. Economic Feasibility
- iii. Behavioral Feasibility

2.2.1 Technical Feasibility

Technical feasibility includes whether the technology is available in the market for development and its availability. The assessment of technical feasibility must be based on an outline design of system requirements in terms of input, output, files, programs and procedures. This can be qualified in terms of volumes of data, trends, frequency of updating, cycles of activity etc, in order to give an introduction of technical system. Considering our project it is technical feasible. Online Recruiting and Online Recruitment Systems, with its emphasis on a more strategic decision making process is fast gaining ground as a popular outsourced function.

2.2.2 Economic Feasibility

This feasibility study present tangible and intangible benefits from the project by comparing the development and operational cost. The technique of cost benefit analysis is often used as a basis for assessing economic feasibility. This system needs some more initial investment than the existing system, but it can be justifiable that it will improve quality of service.

Thus feasibility study should center along the following points:

- i. Improvement resulting over the existing method in terms of accuracy, timeliness.
- ii. Cost comparison
- iii. Estimate on the life expectancy of the hardware.
- iv. Overall objective.

Our project is economically feasible. It does not require much cost to be involved in the overall process. The overall objective is in easing out the recruitment processes.

2.2.3 Behavioral / Operational Feasibility

This analysis involves how it will work when it is installed and the assessment of political and managerial environment in which it is implemented. People are inherently resistant to change and computers have been known to facilitate change. The new proposed system is very much useful to the users and therefore it will accept broad audience from around the world.

2.3 PROBLEM STATEMENT

Now a days the necessity of executing things increasing rapidly in our daily activities. Technology plays a vital role in day-to-day activities. And this in turn made great changes in many work fields and out of them recruitment process is one that changed lot of colors in their systematic approaches.

The computer based recruitment system is to replace manual operations of recruitment of an IT company. As recruitment is a round the year activity involving thousands of candidates a need has been felt to automate the entire operations. Applications are collected in a prescribed format and checked for eligibility. All eligible candidates are sent Admit cards for the selection test.

The test is in one more areas-Aptitude, Verbal and technical skills. The results are compiled and presented to management to decide the cut-offs for interviews. Based on the selection criteria decided by management interview letters are generated. The system should provide for queries and management reports during the recruitment process.

2.4 SOFTWARE REQUIREMENT SPECIFICATION

- i. The User Interface should be user friendly to the user who uses the home page by which he/she can easily register.
- ii. The Operations should take place transparently.

Hardware Platform: P III or above with
RAM of 256MB or above.
And 20GB or above of HD.

Software Platform: Java Enabled Browser
Operating System: Any OS

SERVER

Hardware Platform: P III or above with
RAM of 256MB or above.
And 20GB or above of HD.

Software Platform: Java, JDBC & JSP.
Operating System: Windows 2000 and above.
Backend: Oracle 9i

DESIGN METHODOLOGY DIAGRAMS

3.1 DATABASE DESIGN

3.1.1 Context Diagram

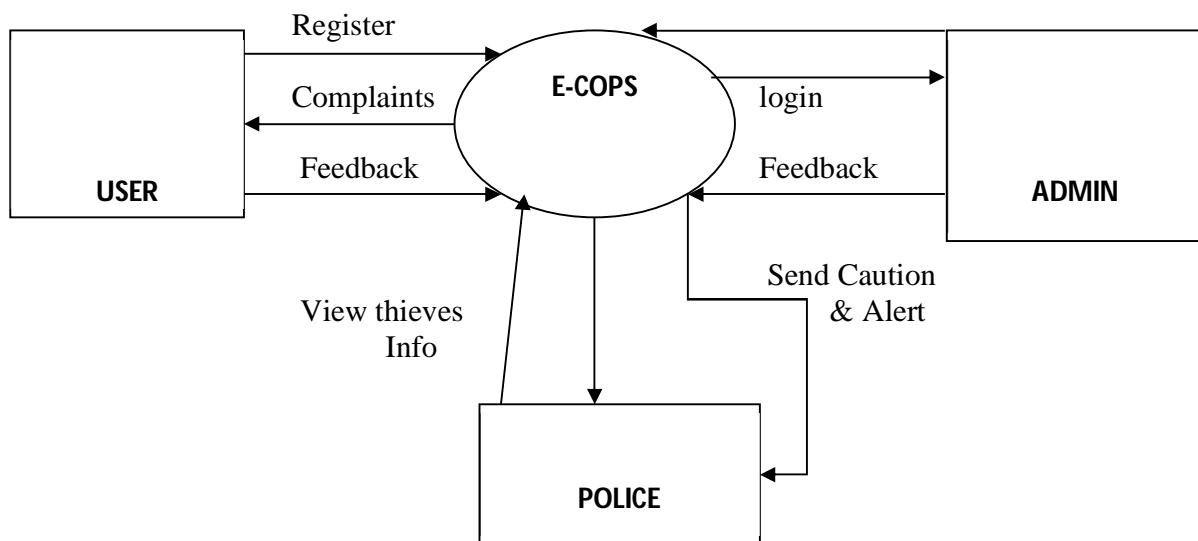
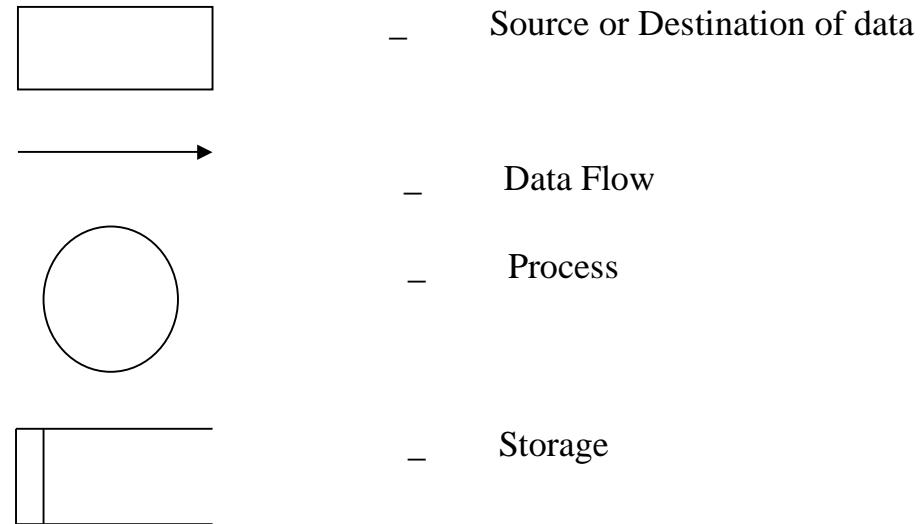


Figure 3.1

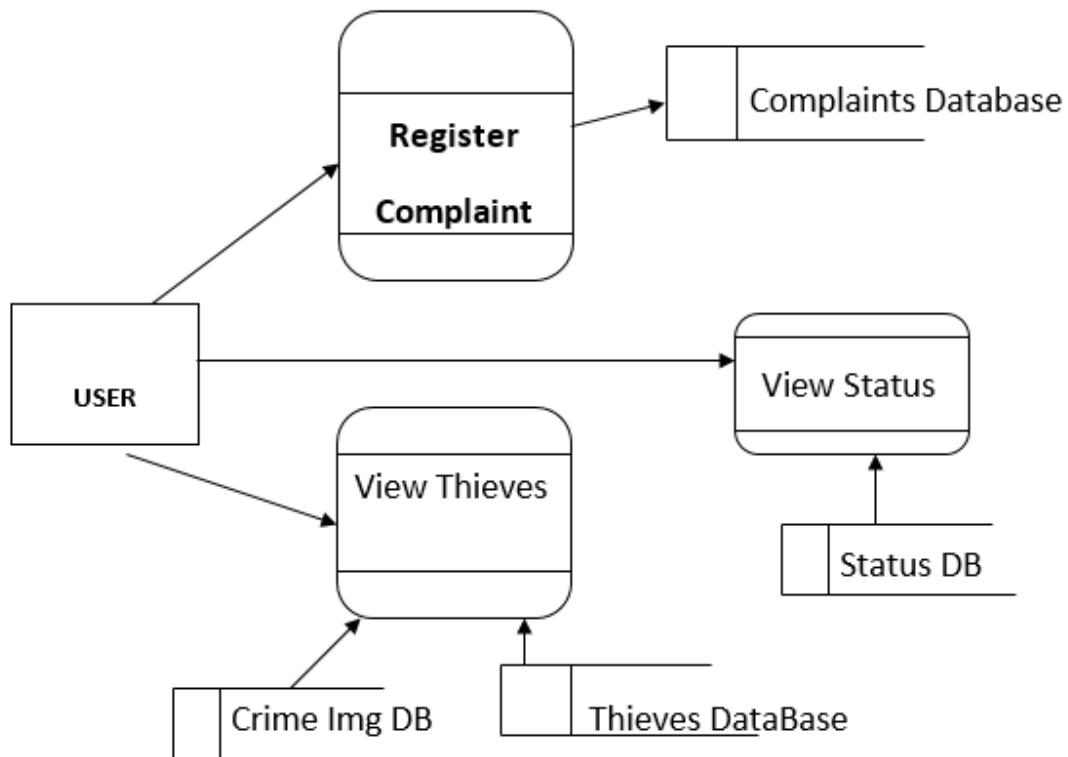
This context diagram gives the overview of the entire project. The modules in this project, user, administrator and the police are interrelated with one another. They can pass the information required to one another.

3.2 DATA FLOW DIAGRAMS

3.2.1 Data Flow Diagram Symbols



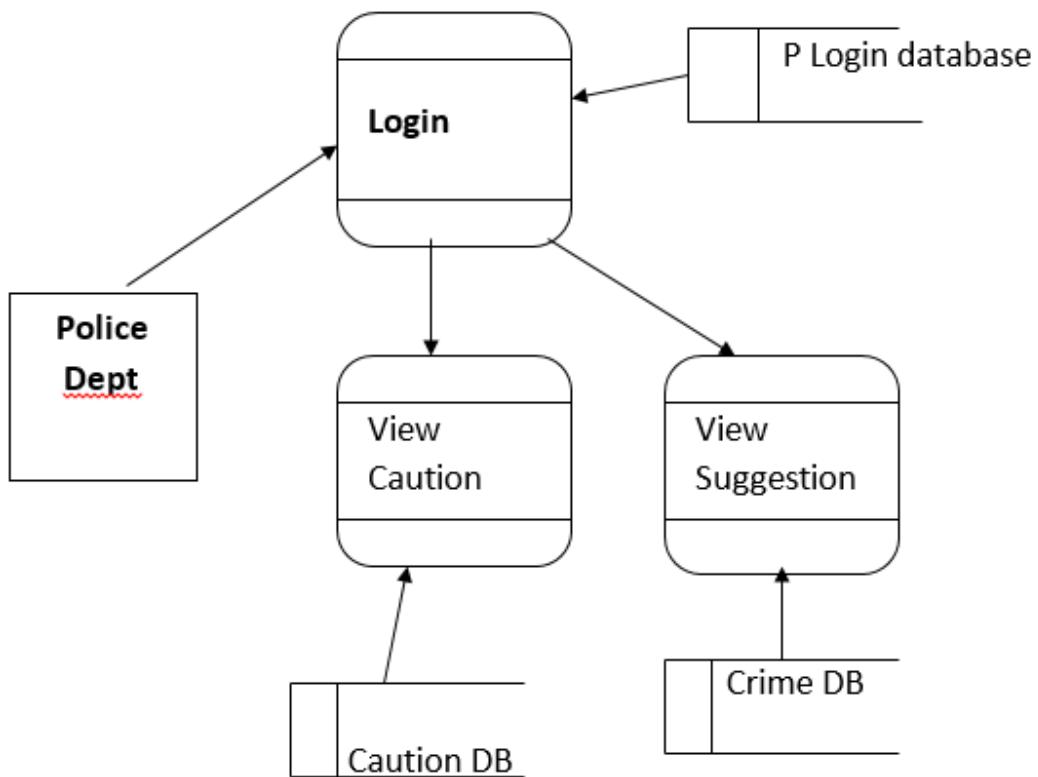
3.2.2 LEVEL -1 DIAGRAM



User login process is the Level-1 DFD shown in figure. Here user has to enter into the registering complaint area. Any one register the complaint so there is user id and password for it. After entering the complaint and pressing submit it will be send to the complaint database .If his complaint has been successfully entered in to the database he is allotted with a self-generated no which is used for the further purposes.

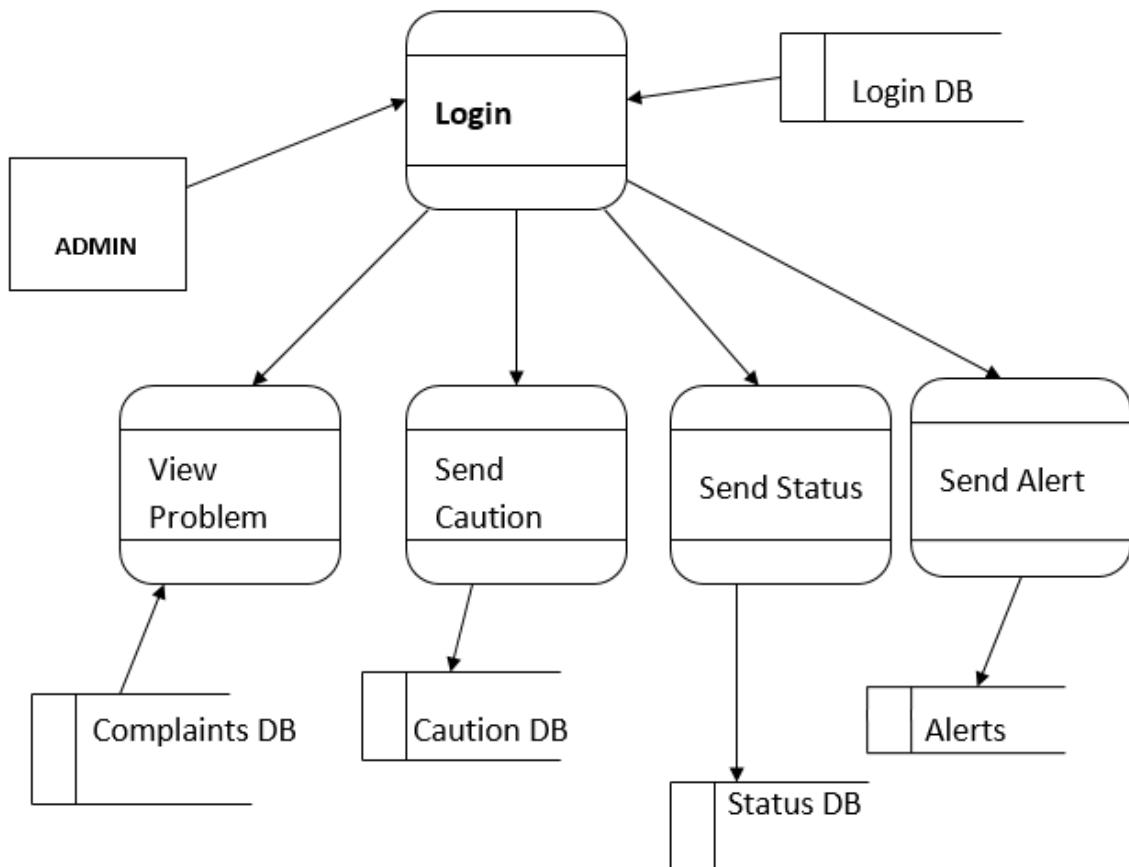
The user can view the status of his compliant in the status menu by entering the self-generated no given by the system and the details of the thieves present in the various locations to make himself cautious .By just selecting the location and the thieves' id he can view the details of the thieves with his photo and reward announced on him by the police.

3.2.3 LEVEL-2 DIAGRAM



Police login is Level-2 DFD as shown in figure. In this level, different police officers of different locations were provided with their particular user id and password using which they have to login in. The entered user id and password were validated and if correct they were made to login. Here they can view the alert message given by the administrator and also the caution by the administrator to the particular complaint. Police officers can see the complaints belonging to their locality only.

3.2.4 LEVEL-3 DIAGRAM

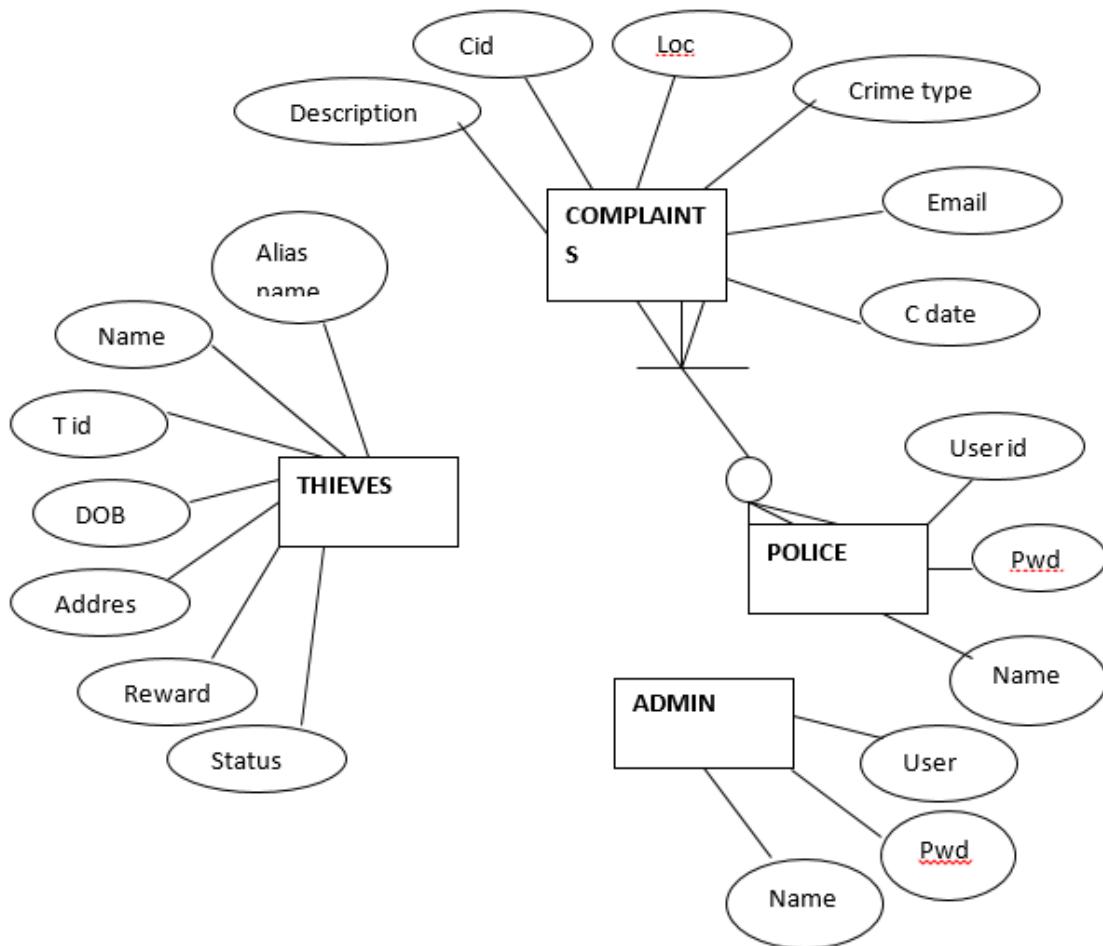


Level-3 DFD diagram is for administrator .Here he consists of login page .Where he has to login using user id and password provided to him. After entering user id and password they are validated and if correct they made to enter into the page. Here he has two tasks they are sending alert messages and caution for the particular complaint to the police. In the caution first he has to select the location and then the complaint id and then he has to send the status and caution to the particular complaint. The entered alert, status, and caution were sent to the respective databases.

3.3 ENTITY RELATIONSHIP DIAGRAM

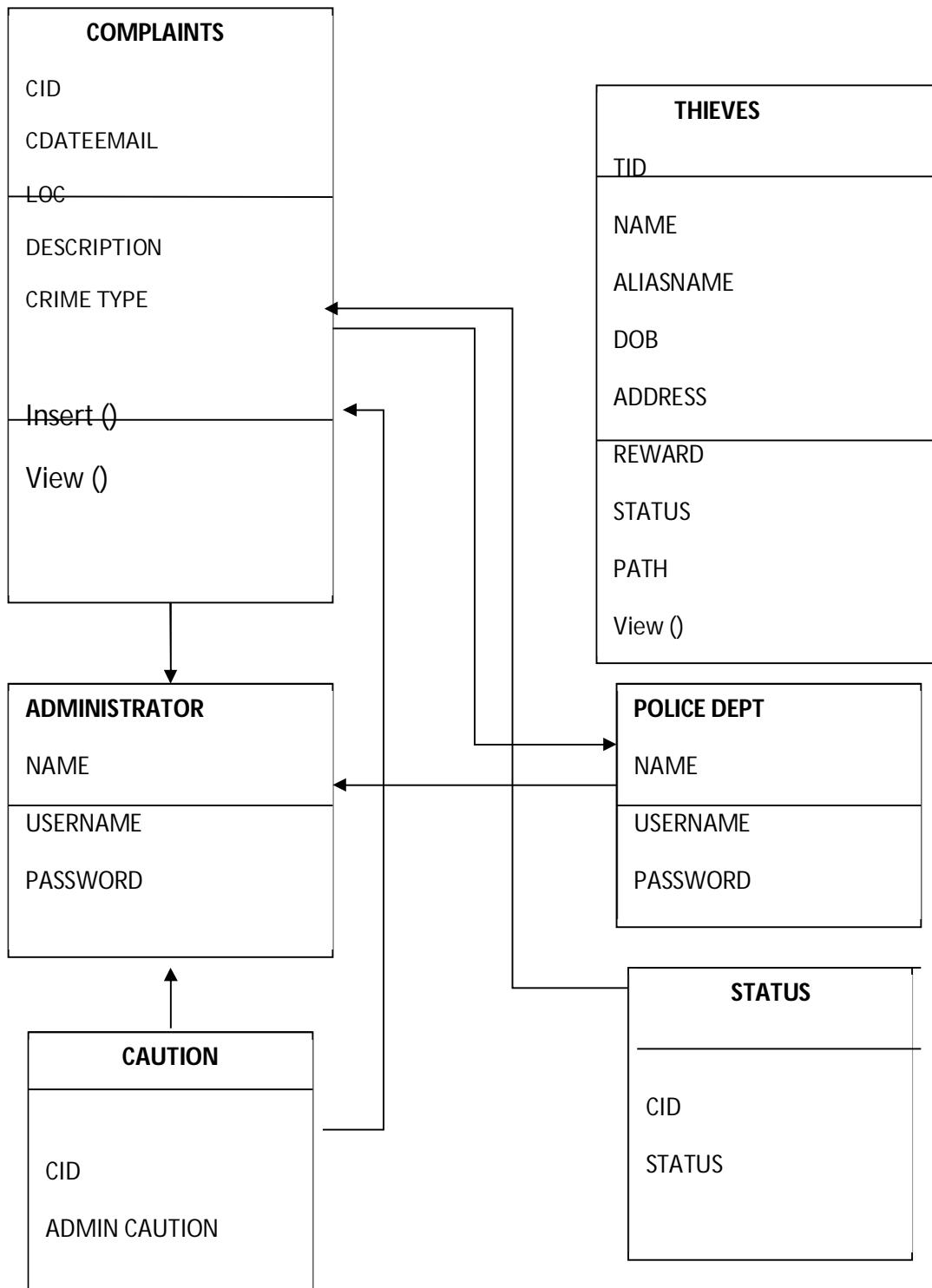
ER Diagrams represent the relationship between the entities. An ER diagram is composed of

- i. Entity is shown by rectangle.
- ii. Attribute is shown by oval.
- iii. Relationships with rhombus.
- iv. Optional is shown by circle.
- v. Compulsory with dash.
- vi. Primary key with underscore.



3.4 CLASS DIAGRAMS

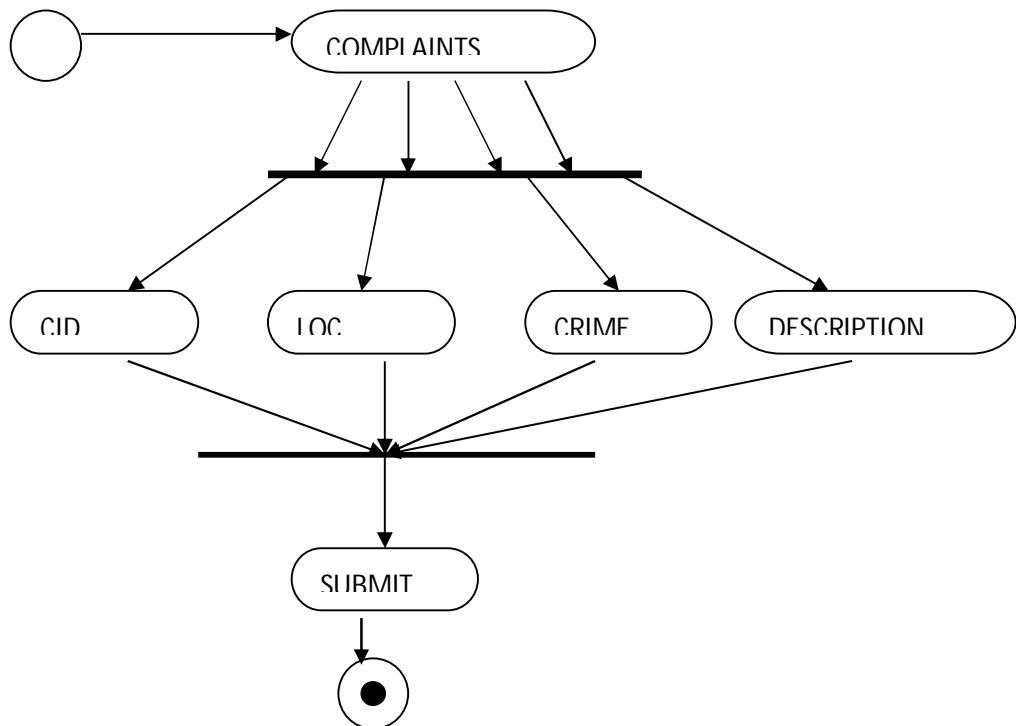
A class diagram shows a set of classes, interfaces, and collaborations and their relationships.



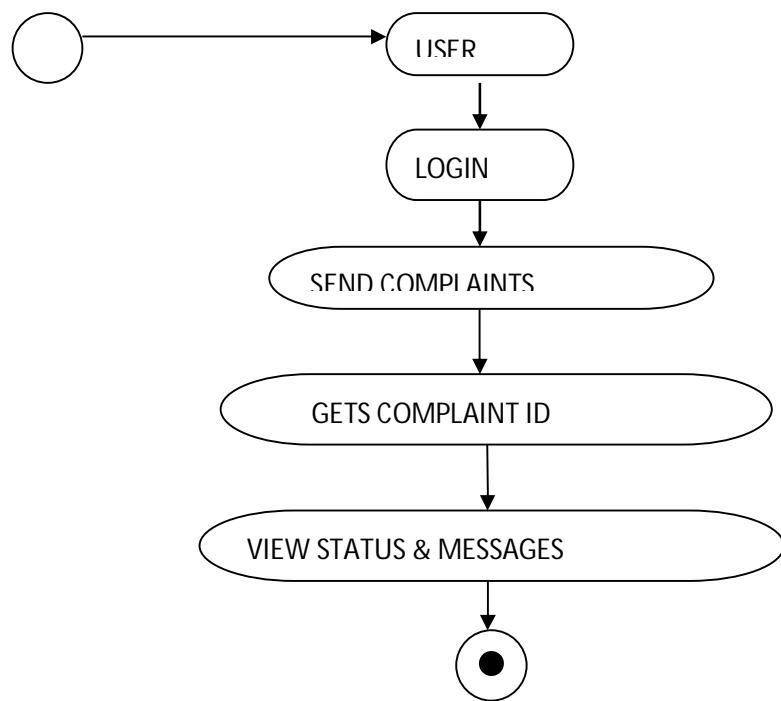
3.5 ACTIVITY DIAGRAMS

An activity diagram is a special kind of a state chart diagram that shows the flow from activity to activity within a system. Here we are having four forms they are Complaints, User, Administrator, and Police.

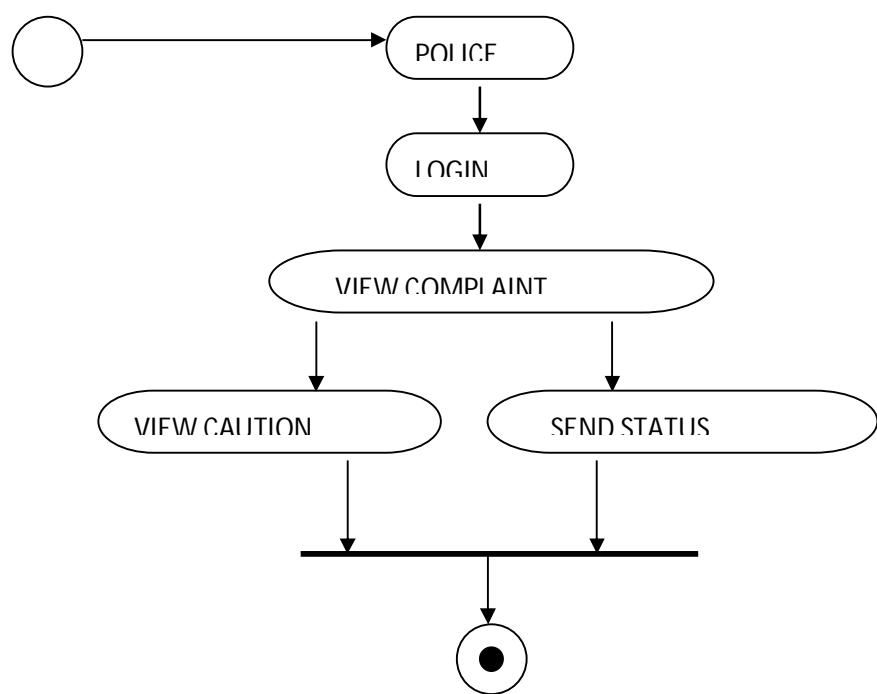
3.5.1 COMPLAINTS



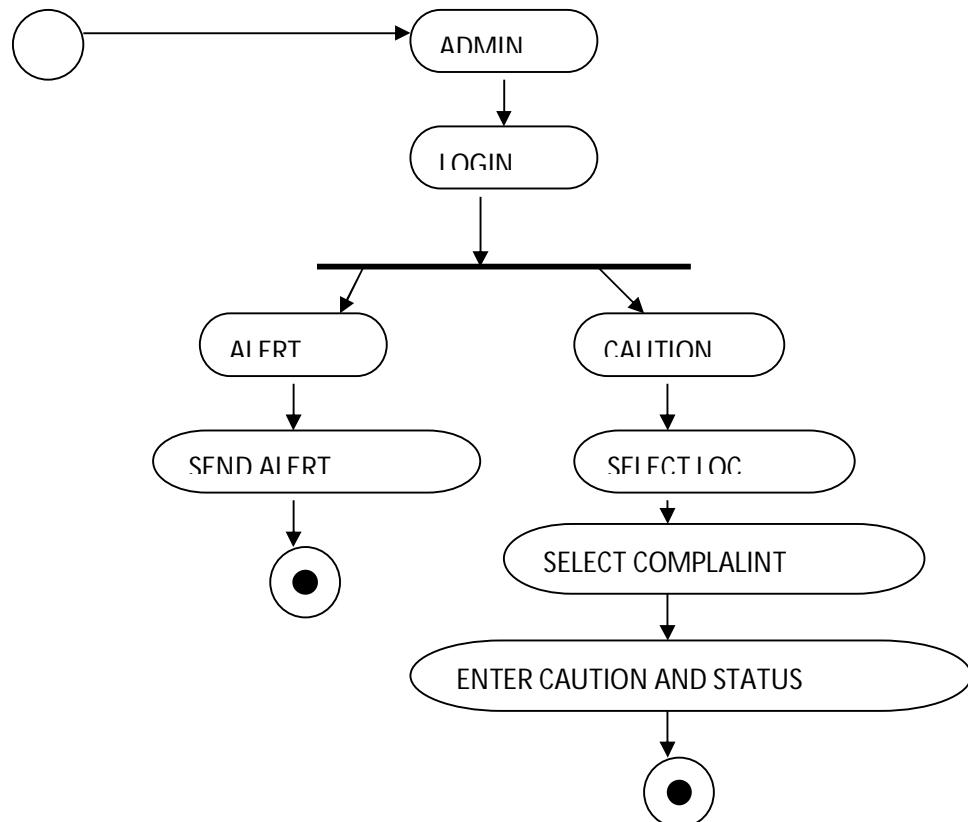
3.5.2 USER



3.5.3 POLICE

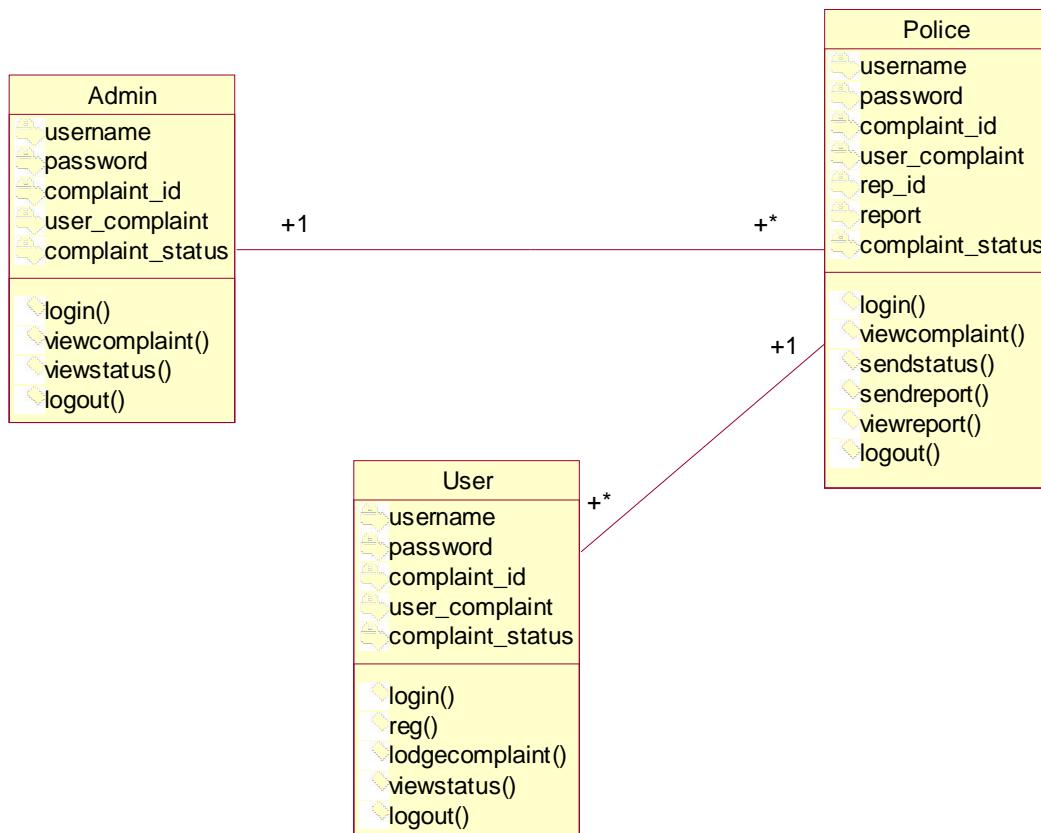


3.5.4 ADMINSTARTOR



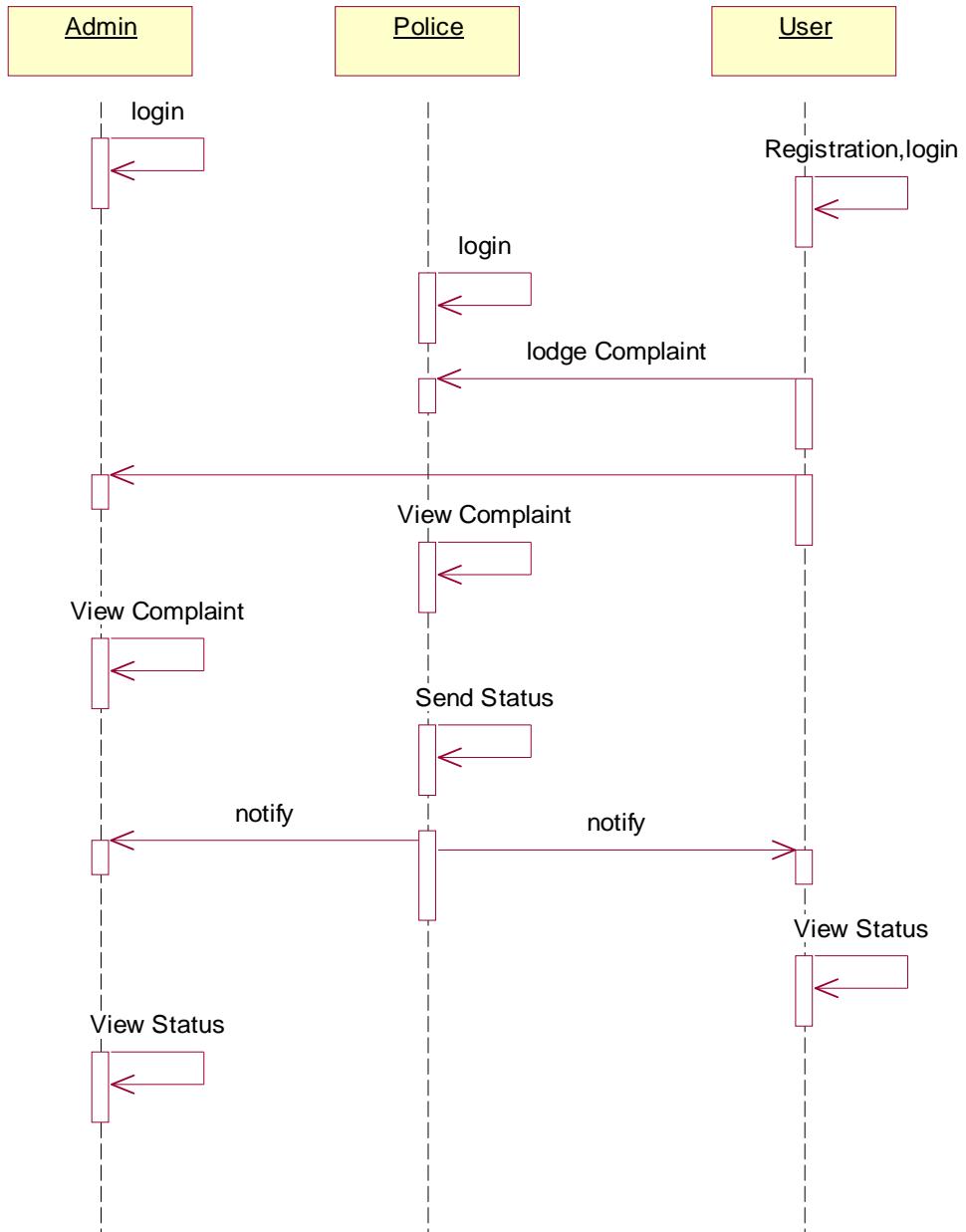
3.6 UML CLASS DIAGRAM

The class diagram is used to refine the use case diagram and define a detailed design of the system. The class diagram classifies the actors defined in the use case diagram into a set of interrelated classes. The relationship or association between the classes can be either an "is-a" or "has-a" relationship.



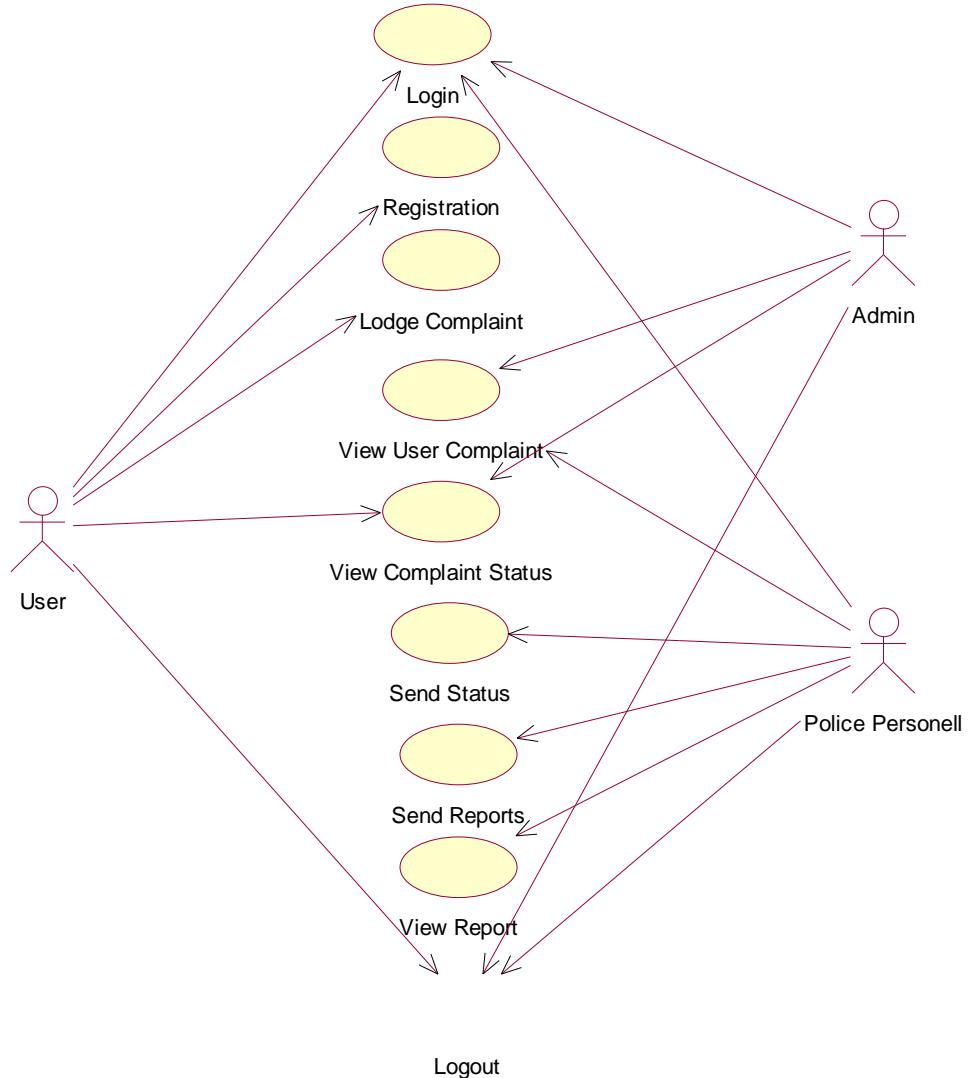
3.7 SEQUENCE DIAGRAM

A sequence diagram represents the interaction between different objects in the system. The important aspect of a sequence diagram is that it is time-ordered. Different objects in the sequence diagram interact with each other.



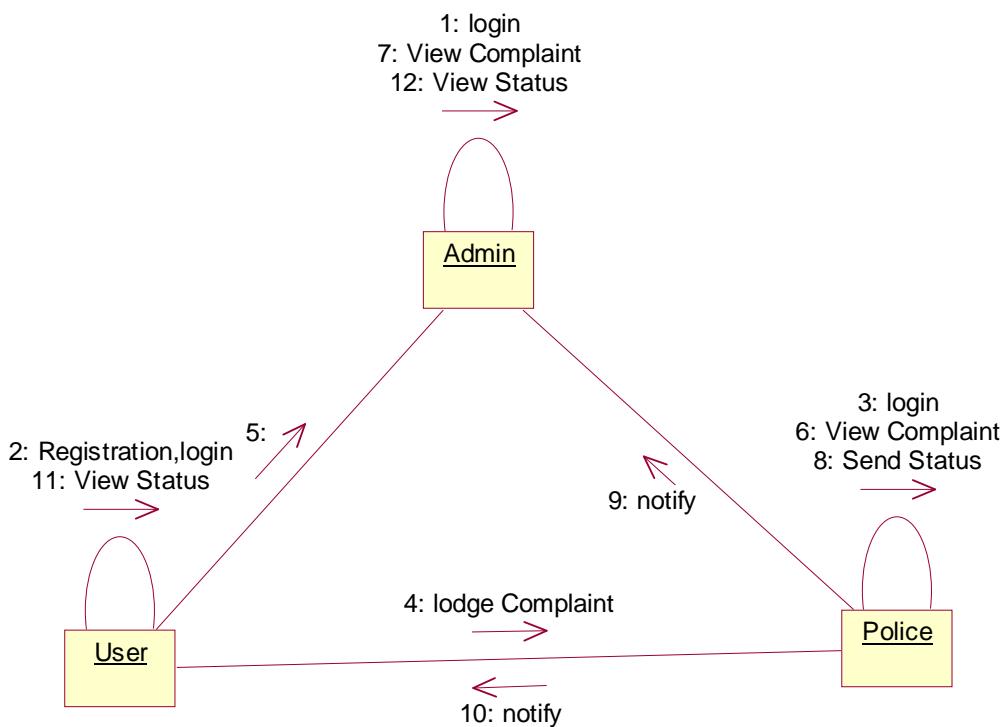
3.8 USE CASE DIAGRAM

The use case diagram is used to identify the primary elements and processes that form the system. The primary elements are termed as "actors" and the processes are called "use cases." The use case diagram shows which actors interact with each use case.



3.9 COLLABORATION DIAGRAM

A collaboration diagram groups together the interactions between different objects. The interactions are listed as numbered interactions that help to trace the sequence of the interactions. The collaboration diagram helps to identify all the possible interactions that each object has with other objects.



3.10 DATABASE TABLES

3.10.1 TABLENAME: COMPLAINTS

This database table gives the details of the complaints and describes its various fields.

S. No	Column Name	Data type	Description	Remarks
1	cid	Number(20)	Complaint Identification Number	Primary Key
2	Loc	Varchar2(20)	Location of Crime	
3	Description	Varchar2(1000)	Complaint	
4	Crime type	Varchar2(20)	Type of Crime	
5	Email	Varchar2(30)	Email ID of user	
6	C date	Date	Date of complaint When recorded	

3.10.2 TABLENAME: THIEVES

This database table gives the thieves information and explains its various fields.

S. No	Column name	Data type	Description	Remarks
1	T id	Number(20)	Thief ID	Primary Key
2	Name	Varchar2(20)	Name of the criminal	
3	Alias name	Varchar2(30)	Other name of the criminal	
4	DOB	Date	Date of birth of the criminal	
5	Address	Varchar2(40)	Address of the criminal	
6	Reward	Number(20)	Prize money announced by police on the criminal	
7	Status	Varchar2(30)`	Status of the criminal given by the police	

3.10.3 TABLENAME: ALERT

This database table has the field for alert message.

S. No	Column name	Data type	Description	Remarks
1	Alert	Varchar2(60)	Alert message given By the Administrator	

3.10.4 TABLENAME: CRIMEIMG

This database table has the fields for the thief identification.

S. No	Column name	Data type	Description	Remarks
1	T id	Number(20)	Thief identification Number	
2	Photo	Varchar2(30)	Path of the photo Stored	

3.10.5 TABLENAME: CAUTION

This database table has the fields for the caution given by the administrator.

S. No	Column name	Data type	Description	Remarks
1	cid	Number(20)	Complaint Identification Number	
2	Admin Caution	Varchar2(30)	Caution given by the Administrator to the given complaint	

3.10.6 TABLENAME: LOGIN

This database table has the fields for the user to login.

S. No	Column name	Data type	Description	Remarks
1	User id	Number(20)	Administrator Identification Number	Primary Key
2	Pwd	Varchar2(30)	Password given to the Administrator	
3	P name	Varchar2(30)	Name of the administrator	

3.10.7 TABLENAME: PLOGIN

This database table has the fields for the police to login.

S. No	Column name	Data type	Description	Remarks
1	User id	Number(20)	Police Identification Number	Primary Key
2	Pwd	Varchar2(30)	Password given to the Police	
3	P name	Varchar2(30)	Name of the police	

3.10.8 TABLENAME: STATUS

This database table has the fields to view the status.

S. No	Column name	Data type	Description	Remarks
1	cid	Number(20)	Complaint Identification Number	
2	Status	Varchar2(20)	Status of the complaint Given by the police	

3.10.9 TABLENAME: CRIMEDB

This database table has the fields to give suggestion to the police.

S. No	Column name	Data type	Description	Remarks
1	Crime Type	Varchar2(30)	Type of crime such as robbery, and any cases can be registered	
2	Suggestion	Varchar2(300)	Suggestion given to the Police dept for particular crime	

3.11 IMPLEMENTATION

An abundance of information about visitors to your site can be recorded with your Web server software. Even the simplest site logs track how many people (unique visitors) saw your site over a given time, how many pages were requested for viewing, and many other variables. By analyzing the server logs for your Web site you can develop quantitative data on the success of your site. The logs will tell you what pages were the most popular and what brands and versions of Web browser people used to view your site. Server logs can also give you information on the geographic location of your site readers. The usefulness of your site logs will depend on what you ask of the server and the people who maintain the server. Detailed logs are the key to quantifying the success of a Web site. Your Webmaster should archive all site logs for long-term analysis and should be prepared to add or change the information categories being logged as your needs and interests change.

A number of popular software packages are designed to produce easily readable site traffic reports, complete with data graphics and charts to aid in data analysis. As a service to customers, site hosting companies often offer reports from popular site analysis programs like WebTrends, often free of charge. Before contracting with an Internet Service Provider (ISP) for site hosting services, always ask about site analysis services. If your ISP or corporate Web site does not offer a good site traffic analysis package, ask whether the Webmaster can give you access to a monthly server log of your account. Basic versions of traffic analysis programs like WebTrends cost about three hundred dollars, and you can run them on a personal computer if you can gain access to the raw Web server log from your ISP or corporate Webmaster.

4 PROJECT LEGACY

4.1 CONCLUSION

The technological benefits of ECOPS are to maintain information, monitor and enhance the performance of the department, to take a critical look at the existing system, processes and procedures of the department so as to identify and remove the redundancy.

The case registered at one police station can be tracked at any police station. This reduces the discretionary dependence of police. Once the case is registered the investigation and follow up activities relating to the case cannot be delayed.

All these factors have contributed to a higher moral of the police officials at all the levels in police department. This project result in great improvement in the organization's functioning by reducing the effort spent by the general people.

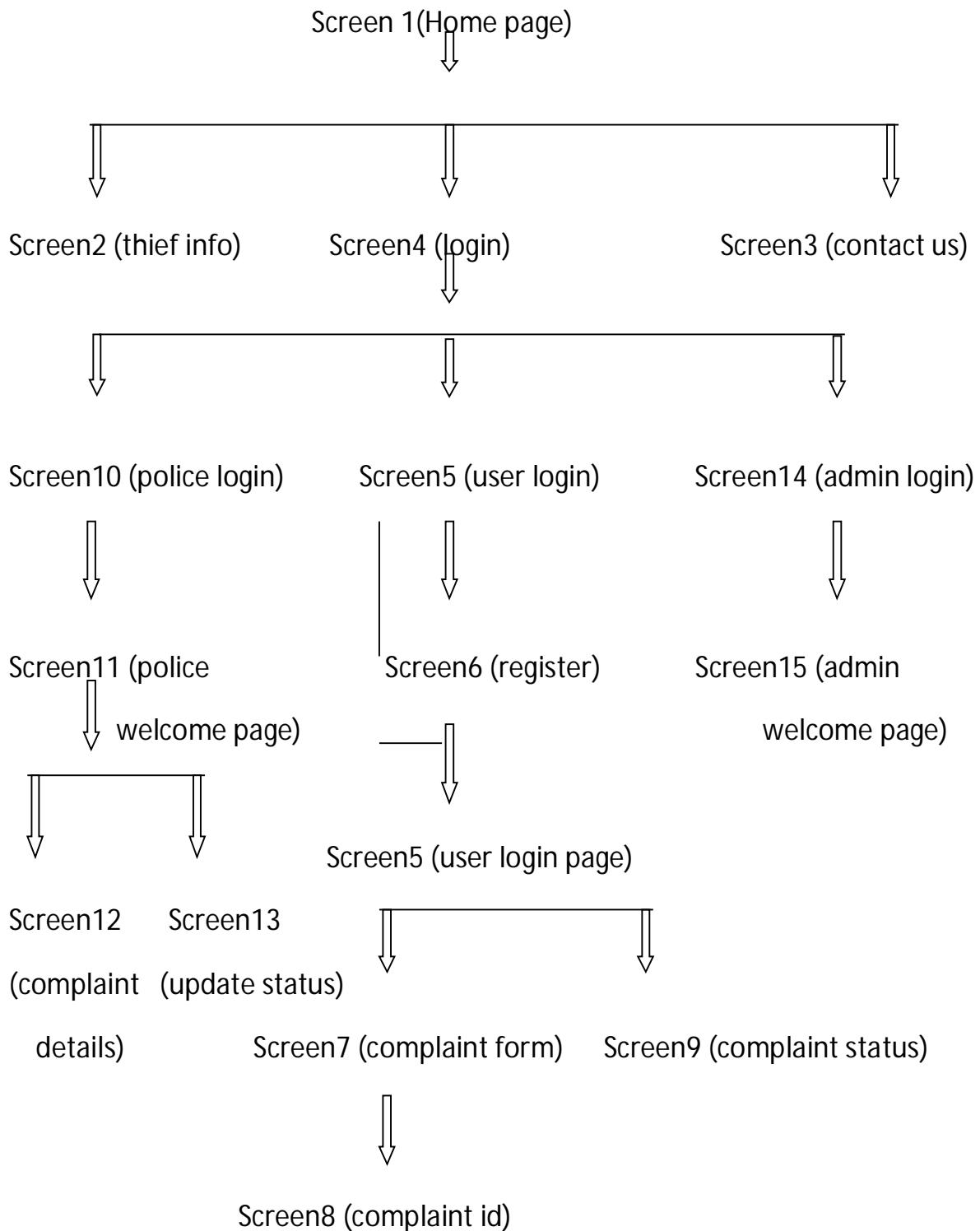
4.2 FUTURE SCOPE

An online solution is very useful as the solution is inherently distributive. This distributive characteristic of the online solution helps in getting the different police stations to share information and get in contact with one another. With respect to ECOPS, going forward, the aim is to develop new technologies that include designing new techniques to fight crime and improve criminal justice. Plans are afoot to embed multi-purpose technologies such as traffic management, mobile data techniques, warrants, personnel scheduling, gang activity analysis, field reporting, human resource development of police personnel, etc.

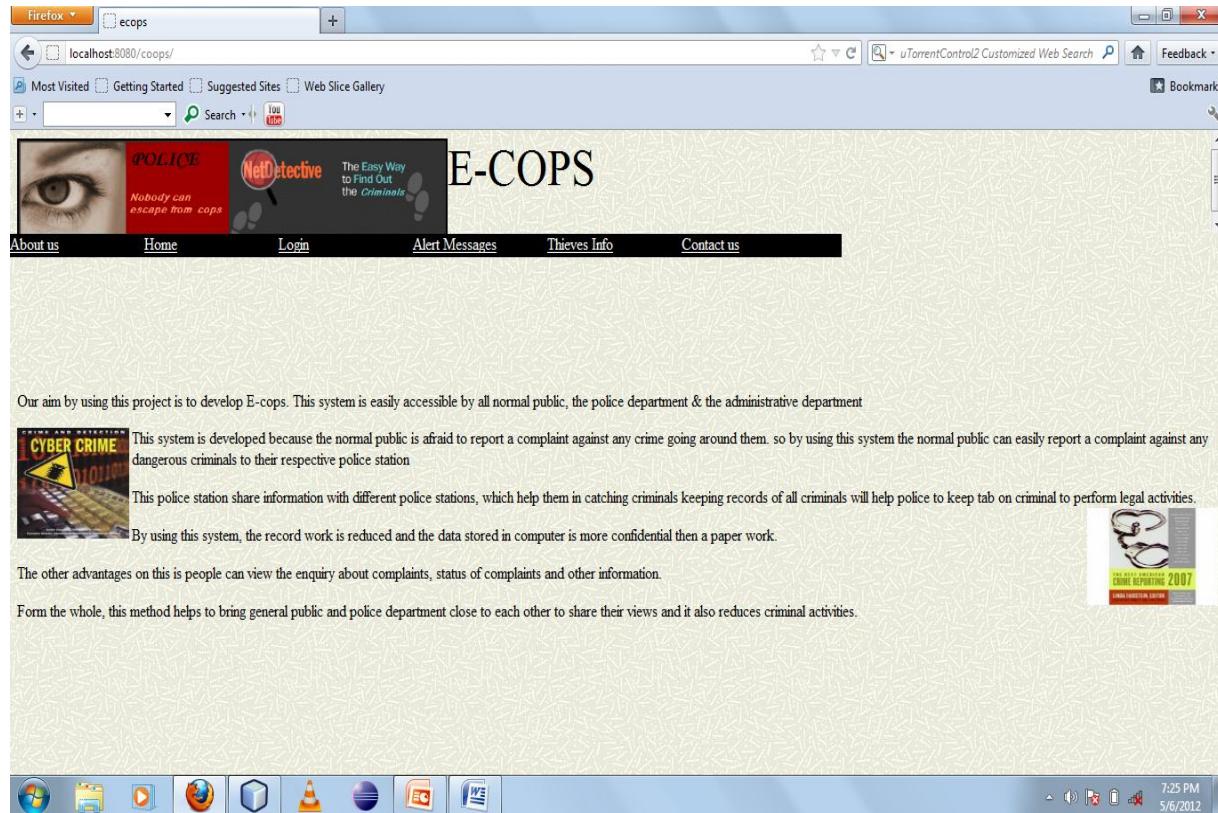
For the police, initiatives such as ECOPS are designed to improve their long-term relations with the citizens due to effective feedback and faster exchange of critical information between various departments and police stations.

5.1 SCREEN SHOTS WITH EXPLANATIONS

Tree showing links b/w screen shots

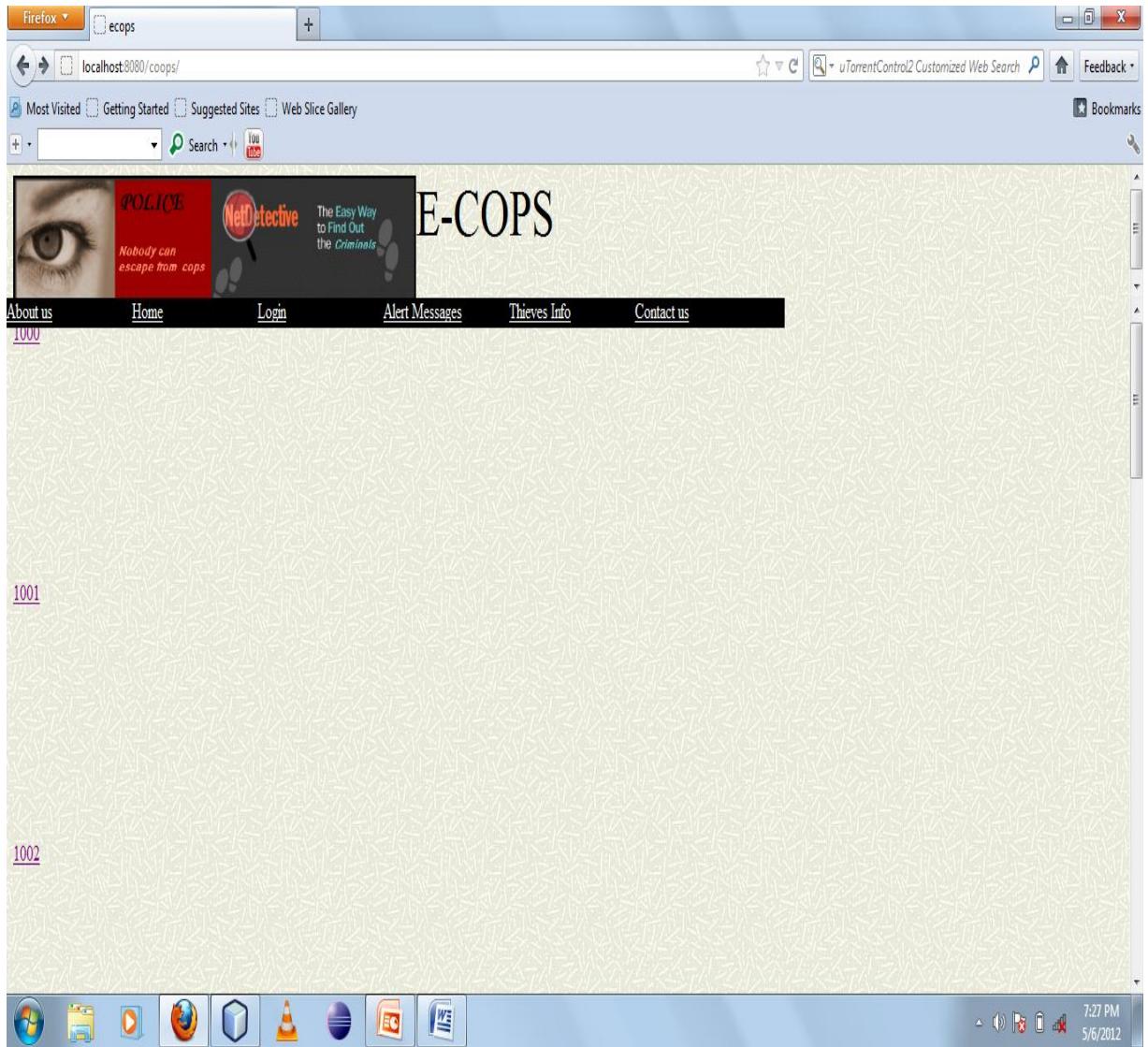


Screen 1



This is the home page we get when we run the project. This page links us to about us, home, and login, alert messages, thieves' info and contact us. Login is used by the people, police department and administrator. Alert messages is the one in which we have the messages given by police and administrator to the people. People can view the information about the thieves in the thieves' info and about the police in contact us. When we click on thieves info we get screen2, and when we click on contact us we get screen3, when we click login we get screen4.

Screen 2



This screen is about thieves information. When we click on particular photo we get the details of that thief. The people and the police department can get the information from this page.

Screen3

To know further information contact us on :

PoliceId:	PoliceName:	Designation:	Location:	Phonenumber:
1	san	noida	15	123456789

This Project is developed by

CMC Limited,Noida.
sandeepdeol43@gmail.com

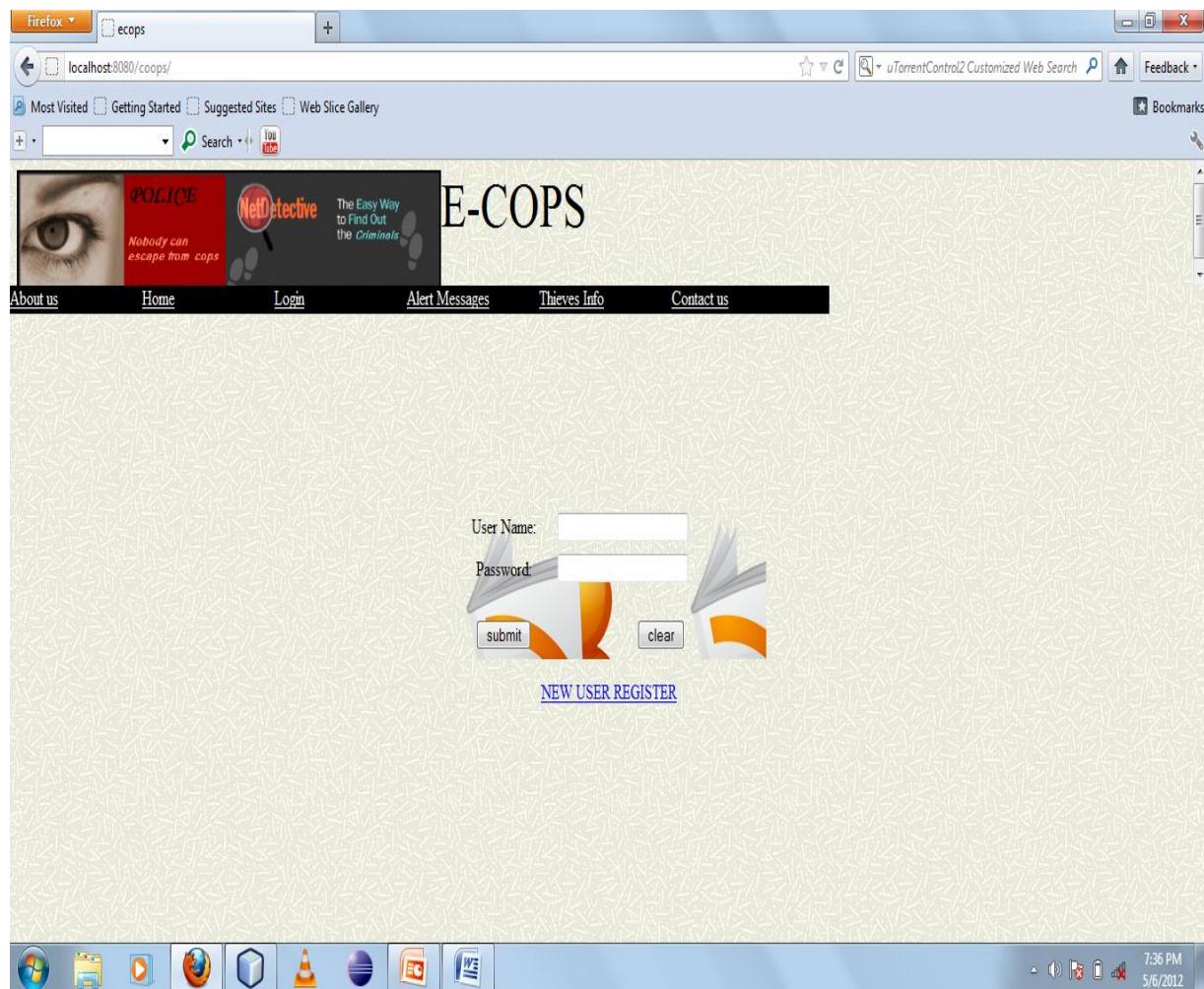
This screen gives the information about the police department. Here we have police id, name, designation, location and their phone numbers. The people can contact the police with help of this information.

Screen4

The screenshot shows a Firefox browser window with the URL localhost:8080/coops/. The page title is "E-COPS". On the left, there's a sidebar with a large eye icon and text: "POLICE", "Nobody can escape from cops", "Net Detective", and "The Easy Way to Find Out the Criminals". The main content area has a heading "E-COPS" and a navigation bar with links: "About us", "Home", "Login", "Alert Messages", "Thieves Info", and "Contact us". Under "Login", there are three sub-links: "People", "Police Department", and "Administrator". Below the navigation bar, a text block states: "Our aim by using this project is to develop E-cops. This system is easily accessible by all normal public, the police department & the administrative department". A small image of a book titled "CYBER CRIME" is shown. Another text block says: "This system is developed because the normal public is afraid to report a complaint against any crime going around them. so by using this system the normal public can easily report a complaint against any dangerous criminals to their respective police station". A second small image of a book titled "EASY WAY TO REPORT CRIME REPORTING 2007" is shown. Further text mentions: "This police station share information with different police stations, which help them in catching criminals keeping records of all criminals will help police to keep tab on criminal to perform legal activities." and "By using this system, the record work is reduced and the data stored in computer is more confidential than a paper work." A third small image of the same book is shown. Text continues: "The other advantages on this people can view the enquiry about complaints, status of complaints and other information." and "Form the whole, this method helps to bring general public and police department close to each other to share their views and it also reduces criminal activities." At the bottom of the browser window, the address bar shows <http://localhost:8080/coops/null>, and the taskbar shows icons for various applications like File Explorer, Internet Explorer, VLC, and others.

This screen is about login. When we place the mouse pointer over this we get three options people, police department and administrator. They login for different purposes. They should have their own user name and pass word to login. If the user doesn't possess then he/she should register the account and have to login.

Screen5



This screen appears when we click people login. If they are new users then they have to click on 'NEW USER REGISTER' to register their accounts which links to screen6. If the user is already registered then there is no need of registering, they can directly login.

Screen 6

The screenshot shows a Firefox browser window with the URL `localhost:8080/coops/` in the address bar. The page title is "E-COPS". On the left, there's a sidebar with a large eye icon, the word "POLICE", and the slogan "Nobody can escape from cops". Next to it is a "Net Detective" logo with the tagline "The Easy Way to Find Out the Criminals". Below these are links for "About us", "Home", "Login", "Alert Messages", "Thieves Info", and "Contact us". The main content area contains a registration form with fields for Name, Password, Age, Gender (with "Male" selected), Address, Telephone No., and Email. At the bottom right of the form are "Submit" and "Clear" buttons. The status bar at the bottom shows various icons and the date/time "5/6/2012 7:38 PM".

Name:

Password:

Age:

Gender: Male

Address:

Telephone No:

Email:

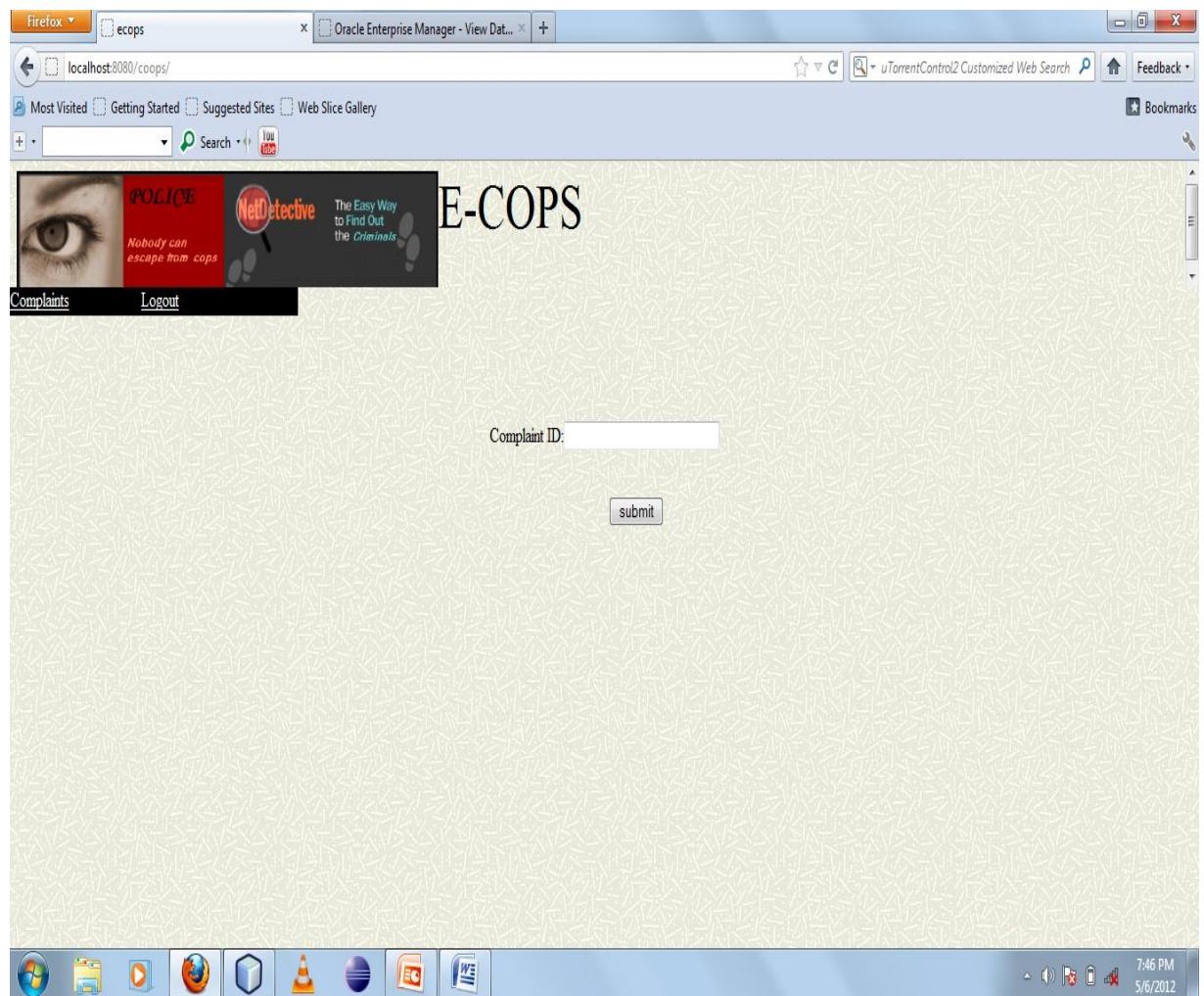
When the user wants to register a new account then they have to fill these fields for registering. This registration form contains the fields like name, password, age, gender, address, telephone number and email. Once they get registered then they can forward any type of complaints to specified station.

Screen7

The screenshot shows a Firefox browser window with the address bar displaying "localhost:8080/ecops". The main content area shows the E-COPS interface. At the top left is a banner with a police officer's eye and the text "POLICE", "NetDetective", and "Nobody can escape from cops". To the right of the banner is the "E-COPS" logo. Below the banner are two buttons: "Complaints" and "Logout". The main title "COMPLAINT FORM" is centered above a form field. The form fields include "Subject" (text input), "Location" (text input), "Date" (text input), and a large "Description" text area. Below the description area is a "Send To" dropdown menu set to "select". At the bottom of the form are "submit" and "clear" buttons. The taskbar at the bottom of the screen shows various icons for Windows applications like File Explorer, Control Panel, and Task View.

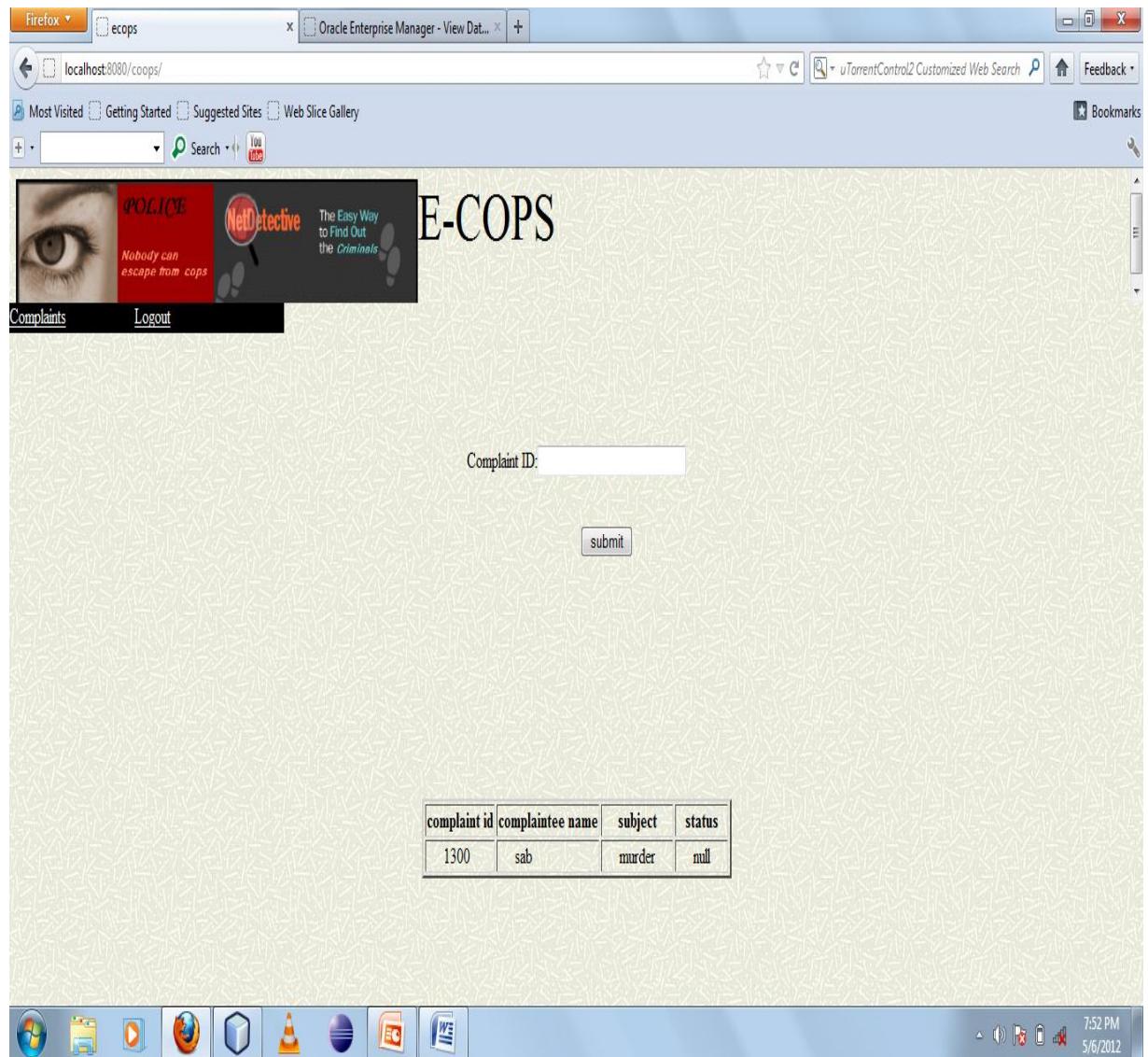
User can give a complaint to the police department after login. When they click on give complaint then we get this screen as complaint form. Complaint form has to be filled up by the users and to be send to particular station. The user has to fill the fields such as subject, location, date description and has to submit the form.

Screen8



When we submit the complaint form the user get the complaint id which is very useful. By this complaint id users can directly view the status of their complaint.

Screen9



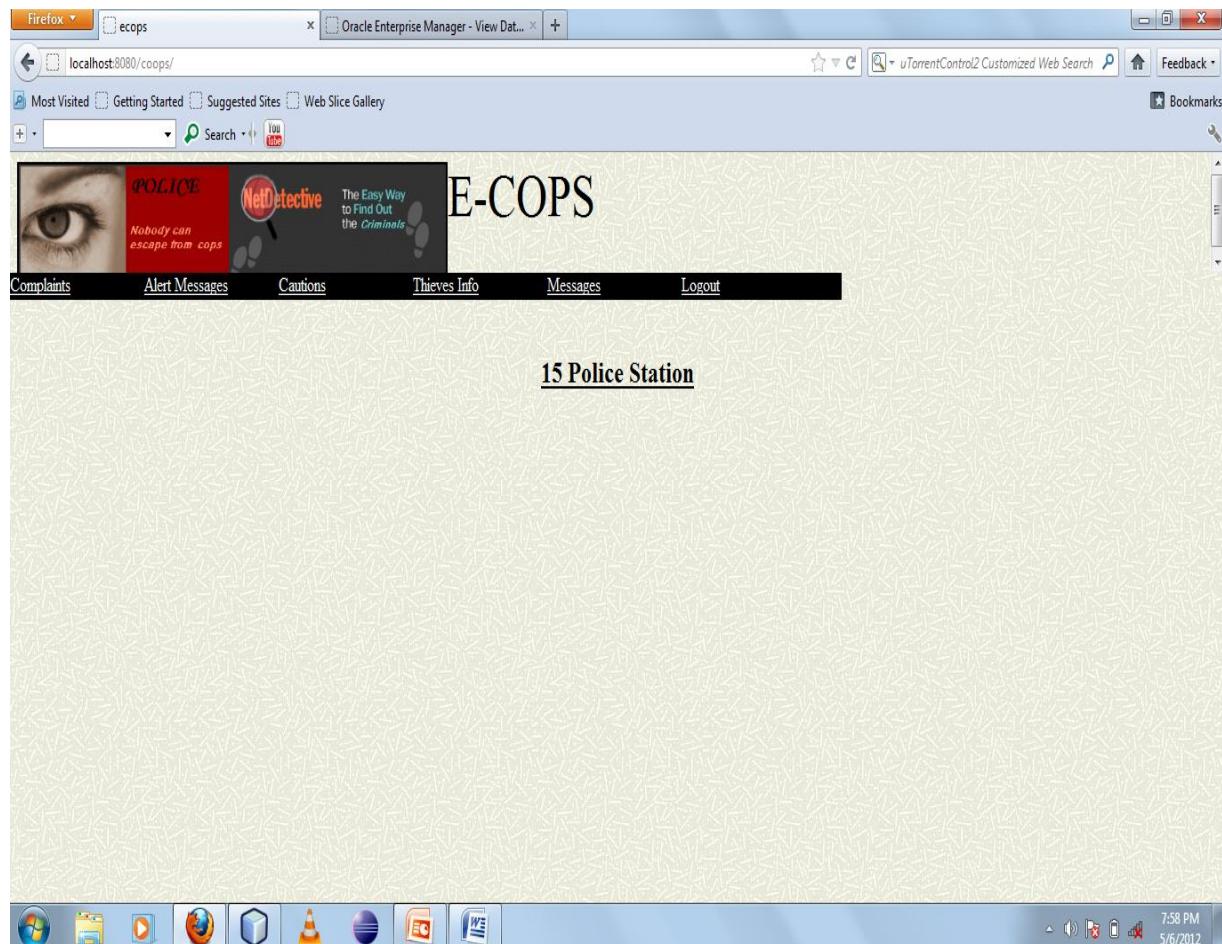
With the help of complaint id given to them, the user can check the status of their complaints.

Screen10



This screen is about the police department login. They have their own username and password with their specified location. And then they can view the complaints given to them. The complaints are shown to the police with their ids. The police then updates the status of the complaint based on the progress of the investigation. When they login to specified location they get screen12 with various fields.

Screen11



When police login to their particular location they get various options like complaints, alert messages, cautions, thieves info, messages and logout. Police can view the complaints and also can send the status back to the user. Alert messages can be viewed by the police that are sent by the admin and also different police stations. Cautions are mainly given by the administrators to the police department.

Screen12

The screenshot shows a Firefox browser window displaying the E-COPS web application. The URL in the address bar is `localhost:8080/coops/`. The page title is "E-COPS". The main content area displays a banner with a police eye and the text "POLICE", "Net Detective", and "The Easy Way to Find Out the Criminals". Below the banner, there is a navigation menu with links: Complaints, Alert Messages, Cautions, Thieves Info, Messages, and Logout. A green button labeled "View" is highlighted. The text "Update" is visible below the menu. The main content area is titled "15 Police Station" and contains the text "COMPLAINT ID's" followed by two entries: "1280" and "1300". At the bottom of the page, there is a link `http://localhost:8080/coops/comview.jsp`. The status bar at the bottom of the browser window shows the time as 7:59 PM and the date as 5/6/2012.

This screenshot shows the same Firefox browser window after a click on the "View" button. The page title is "E-COPS". The main content area displays a banner and a navigation menu. Below the menu, there is a table titled "Complaint Details" with the following data:

Complainee Name:	sandip
Complaint ID:	1280
Subject:	thief
Location:	talwandi sabo
Date:	2012-04-12 00:00:00.0
Description:	about to miss my phone

At the bottom of the page, there is a link `http://localhost:8080/coops/comview.jsp`. The status bar at the bottom of the browser window shows the time as 8:00 PM and the date as 5/6/2012.

The police can view the complaint details of the complaints given to them. With the help of this they understand the position of the crime occurred.

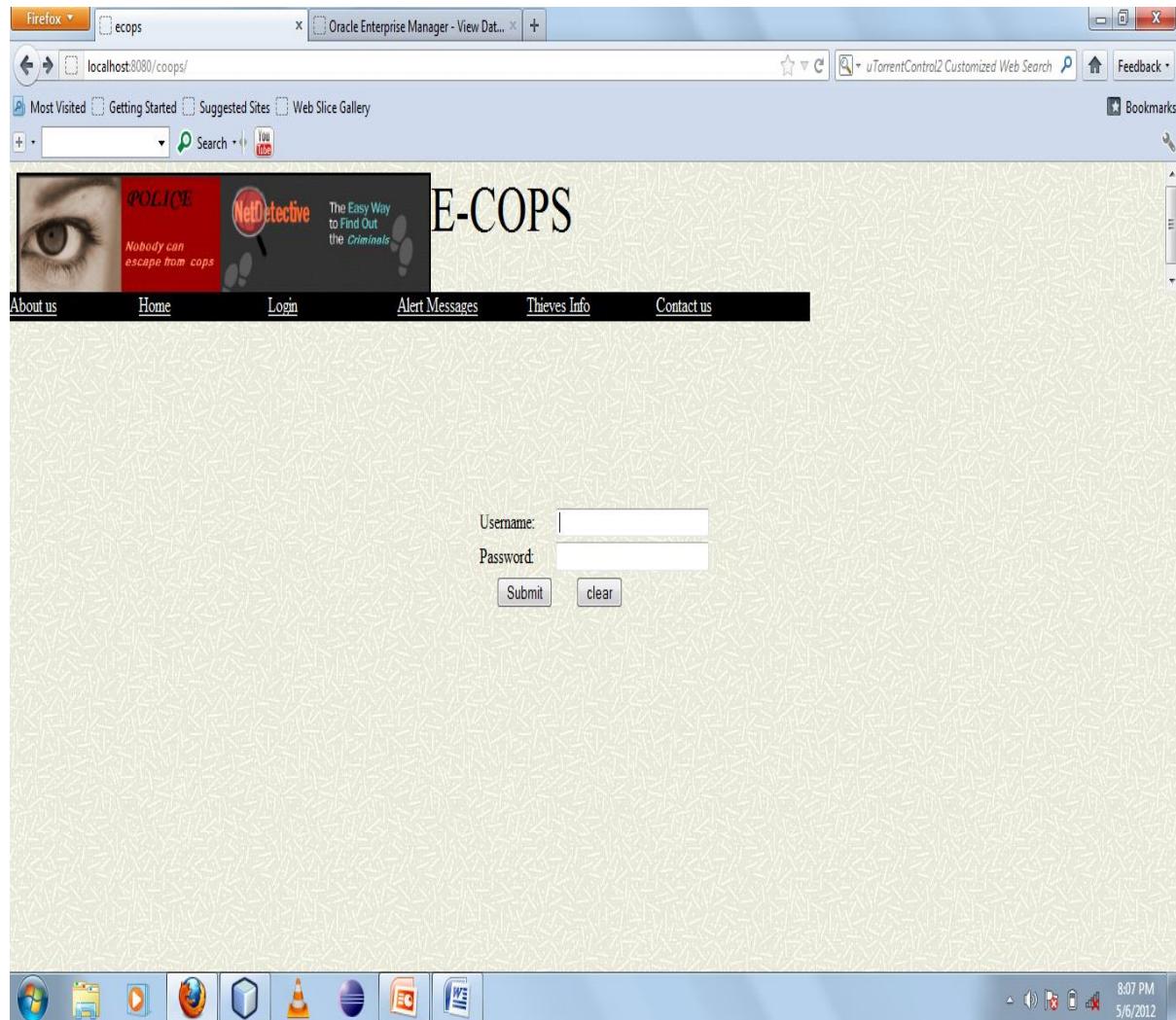
Screen13

The screenshot shows a Firefox browser window with the URL localhost:8080/coops/. The page title is "E-COPS". The main content area displays a banner with a police eye and the text "POLICE Nobody can escape from cops" and "Net Detective The Easy Way to Find Out the Criminals". Below the banner, there is a navigation menu with links: Complaints, Alert Messages, Cautions, Thieves Info, Messages, and Logout. A green button labeled "Update" is visible. The main content area has a heading "Update Status of Complaint". A form field "Complaint Id:" contains the value "1300". A "submit" button is present. The status bar at the bottom of the browser window shows the URL <http://localhost:8080/coops/cid.jsp>, the time "8:03 PM", and the date "5/6/2012".

This screenshot shows the same Firefox browser window as the previous one, but the "Present Status:" field now contains the value "null". The "Submit" and "Clear" buttons are visible below the status fields. The status bar at the bottom of the browser window shows the URL <http://localhost:8080/coops/cid.jsp>, the time "8:04 PM", and the date "5/6/2012".

This screen is used by the police to post the status of the complaint to the user. The status of the complaint is based on the progress of the investigation.

Screen14



This screen shows administrator login. They have their own username and password to login. When they login screen15 appears. Administrators are the people who view the complaints of the people and also verifies about the police who are taking up the case and the status of the complaints. They can login to verify the cases which have been registered and their investigation.

Screen15

The screenshot shows a Firefox browser window displaying the 'ecops' website at 'localhost:8080/ecops/'. The title bar reads 'Firefox - ecops - Oracle Enterprise Manager - View Dat...'. The main content area features a banner with a police eye and the text 'POLICE', 'Net Detective', 'Nobody can escape from cops', and 'The Easy Way to Find Out the Criminals'. Below the banner, the 'E-COPS' logo is displayed. A navigation menu bar includes links for 'Complaints', 'Alert Messages', 'Cautions', and 'Logout'. The 'Complaints' link is underlined, indicating it is the active page. The 'Complaints' section displays a table of two rows of complaint data:

Complaint Id:	ComplainteeName:	Date:	Description:	Stations:	Status:
1280	sandip	2012-04-12	about to miss my phone	15	null
1300	sab	2012-04-12	this is reporting sir.....	15	null

The bottom of the screen shows the Windows taskbar with icons for File Explorer, Internet Explorer, and other system tools. The system tray shows the date as 5/6/2012 and the time as 8:09 PM.

When administrator login they have various options like complaints, alert messages, cautions. Administrators are the higher authorities. Admin can view the complaints universally unlike police. They can give alert messages to the police and also for public. They give cautions to the police regarding the complaints they received.

6.1 APPENDICES

6.1.1 Introduction to Java

Java is a programming language originally developed by James Gosling at Sun Microsystems (which has since merged into Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to bytecode (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture. Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that code that runs on one platform does not need to be recompiled to run on another. Java is currently one of the most popular programming languages in use, particularly for client-server web applications, with a reported 10 million users.

Java technology's versatility, efficiency, platform portability, and security make it the ideal technology for network computing. From laptops to datacenters, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!

- i. 1.1 billion desktops run Java
- ii. 930 million Java Runtime Environment downloads each year
- iii. 3 billion mobile phones run Java
- iv. 31 times more Java phones ship every year than Apple and Android combined
- v. 1.4 billion Java Cards are manufactured each year
- vi. Create programs to run within a Web browser and Web services
- vii. Combine applications or services using the Java language to create highly customized applications or services

Java is a high level, third-generation programming language, like C, Fortran, Perl and many others. It is a platform for distributed computing – a development and run-time environment that contains built-in support for the World Wide Web.

History of Java

Java development began at Sun Microsystems in 1991, the same year the World Wide Web was conceived. Java's creator, James Gosling did not design java for the Internet. His Objective was to create a common development environment for consumer electronic devices which was easily portable from one device to another.

This effort evolved into a language, code named Oak and later renamed Java that retains much of the syntax and power of c++ , but is simpler and more platform independent.

Java Features

Some of the important features of Java are as follows:

- i. Simplicity
- ii. Orientation
- iii. Platform Independence
- iv. Security
- v. High Performance
- vi. Multi Threading
- vii. Dynamic linking.
- viii. Garbage Collection

One of the most important features of Java is Platform Independence which makes it famous and suitable language for World Wide Web.

Why java is Platform Independent?

Java is Platform Independent because of Java Virtual Machine (JVM).

Java Virtual Machine (JVM)

The client application or operating system must have a java byte-code interpreter to execute byte-code instructions. The interpreter is a part of a lager program called the JVM. The JVM interprets the byte code into native code and is available on a platform that supports java.

Connectivity using JDBC

There are four kind of drivers available in Jdbc:-

- i. JdbcOdbc Bridge Driver.
- ii. Partly Java Driver.
- iii. Pure Java Driver.
- iv. Native Driver.

Client Side Interface:

In client side interface we are using:-

Servlet / JSP – In Internet Based Application.

J2EE Framework and Architecture

J2EE is one of the best solutions that we have had so far for meeting the demand of today's enterprise. J2EE specifies both the infrastructure for managing our applications, and the service APIs for building our applications.

The J2EE platform is essentially a distributed application-server environment- a java environment that provides the following: -

- i. A set of java extension APIs to build applications. These APIs define a programming model for J2EE applications.
- ii. A run time infrastructure for hosting and managing applications. This is the server runtime in which our applications resides.

The applications that we could develop with the above may be programs to drive web pages, or components to implement complex database transactions, or even java applets, all distributed across the network.

The J2EE Runtime

While J2EE bundles together APIs that have been in existence in one form or another for quite sometime, perhaps its most significant aspect is the abstraction of the runtime infrastructure. The J2EE specification doesn't specify how a J2EE runtime should or could be built. Instead, J2EE specify roles and interfaces for applications, and the runtime onto which applications could be deployed. This results in a clear demarcation between applications and the runtime infrastructure. This demarcation allow the runtime to abstract most of the infrastructure services that enterprise developers have traditionally attempt to build on their own. As a result, J2EE application developers could just focus on the application logic and related service, while leveraging the runtime for all infrastructure-related services.

Apart from specifying a set of standard APIs, the J2EE architecture also provides a uniform means of accessing platform-level services via its runtime environment. Such service includes distributed transactions, security, messaging etc.

The J2EE APIs Used

Distributed applications require access to a set of enterprise services. Typical services include transaction processing, database access, messaging, multithreading etc. The J2EE architecture unifies access to such services in its enterprise service APIs. However, instead of having to access these service through proprietary or non-standard interfaces, application programs in J2EE can access these APIs via the container.

There are various API specification in J2EE framework which enable us to create an application at great speed with minimum effort.

APIs Used To Build the Software

JDBC API

The JDBC API provides developers with a way to connect to relational data from within java code. Using the JDBC API, developers can create a client (which can be anything from an applet to an EJB) that can connect to a database, execute structured query language statements, and processes the result of those statements. The API provides connectivity and data access across the range of relational databases. It can do this because it provides a set of generic database access methods for sql compliant relational databases. JDBC generalizes the most common database access functions by abstracting the vendor specific detail of particular database. The result is set of classes and interface, placed in the `java.sql` package, which can be used with any database that has an appropriate JDBC driver. This allows JDBC connectivity to be provided in a consistent way for any database. It also means that with a little care to ensure the application conforms to the most commonly available database features, an application can be used with a different database simply by switching to a different JDBC driver. JDBC includes following packages for the means of database accessing and provides various features of the database. The packages are as follows: -

i. `java.sql` Package

This package contains classes and interfaces designed with traditional client/server in mind. Its functionality is focused primarily on basic database programming services such as creating connections, executing statements and prepared statements, and running batch queries. Advanced functions such as batch updates, scrollable result sets, transaction isolation, and sql data types are also available.

ii. `javax.sql` Package

This package introduces some major architectural change to JDBC programming compared to `java.sql` package, and provides better abstractions for connections management, distributed transactions, and legacy connectivity. This package also introduces container-managed connection pooling, distributed transactions, and row sets.

Java Servlets

Servlets are Java technology's answer to Common Gateway Interface (CGI) programming. They are programs that run on a Web server, acting as middle layer between a request coming from a Web browser or other HTTP client and databases or applications on the HTTP server. Their job is to:

Read any data sent by the user

This data is usually entered in a form on a Web page, but could also come from a Java applet or a custom HTTP client program.

Look up any other information about the request that is embedded in the HTTP request

This information includes details about browser capabilities, cookies, the host name of the requesting client, and so forth.

Generate the results

This process may require talking to a database, executing an RMI or CORBA call, invoking a legacy application, or computing the response directly.

Format the results inside a document

In most cases, this involves embedding the information inside an HTML page.

Set the appropriate HTTP response parameters

This means telling the browser what type of document is being returned (e.g., HTML), setting cookies and caching parameters, and other such tasks.

Send the document back to the client

This document may be sent in text format (HTML), binary format (GIF images), or even in a compressed format like gzip that is layered on top of some other underlying format. Many client requests can be satisfied by returning pre-built documents, and these requests would be handled by the server without invoking servlets. In many cases, however, a static result is not sufficient, and a page needs to be generated for each request.

Java Server Pages

Java Server Pages (JSP) technology enables you to mix regular, static HTML with dynamically generated content from servlets. Many Web pages that are built by CGI programs are primarily static, with the parts that change limited to a few small locations. For example, the initial page at most on-line stores is the same for all visitors, except for a small welcome message giving the visitor's name if it is known. But most CGI variations, including servlets, make you generate the entire page via your program, even though most of it is always the same. JSP lets you create the two parts separately. Listing 1.1 gives an example.

Most of the page consists of regular HTML, which is passed to the visitor unchanged. Parts that are generated dynamically are marked with special HTML-like tags and mixed right into the page.

The Advantages of JSP

JSP has a number of advantages over many of its alternatives. Here are a few of them.

Versus Active Server Pages (ASP)

ASP is a competing technology from Microsoft. The advantages of JSP are twofold. First, the dynamic part is written in Java, not VBScript or another ASP-specific language, so it is more powerful and better suited to complex applications that require reusable components. Second, JSP is portable to other operating systems and Web servers; you aren't locked into Windows NT/2000 and IIS. You could make the same argument when comparing JSP to ColdFusion; with JSP you can use Java and are not tied to a particular server product.

Versus Pure Servlets

JSP doesn't provide any capabilities that couldn't in principle be accomplished with a servlet. In fact, JSP documents are automatically translated into servlets behind the scenes. But it is more convenient to write (and to modify!) regular HTML than to have a zillion `println` statements that generate the HTML. Plus, by separating the presentation from the content, you can put different people on different tasks: your Web page design experts can build the HTML using familiar tools and leave places for your servlet programmers to insert the dynamic content.

Versus Server-Side Includes (SSI)

SSI is a widely supported technology for inserting externally defined pieces into a static Web page. JSP is better because you have a richer set of tools for building that external piece and have more options regarding the stage of the HTTP response at which the piece actually gets inserted. Besides, SSI is really intended only for simple inclusions, not for "real" programs that use form data, make database connections, and the like.

Versus Static HTML

Regular HTML, of course, cannot contain dynamic information, so static HTML pages cannot be based upon user input or server-side data sources. JSP is so easy and convenient that it is quite reasonable to augment HTML pages that only benefit slightly by the insertion of dynamic data. Previously, the difficulty of using dynamic data precluded its use in all but the most valuable instances.

What is JAVASCRIPT?

Javascript is a compact , object-based scripting language. It can provide interactive web pages, validate from data, and make your web page clearer. Javascript is a lightweight interpreted scripting language. The language is most well known for its use in websites. It was originally developed by Brendan Eich of Netscape Communications. It adds interactive functions to HTML pages, which are otherwise static. Javascript is easier to use than Java, but not as powerful and deals mainly with the elements on the Web page. On the client, JavaScript is maintained as source code embedded into an HTML page. On the Server, it is compiled into byte code(intermediate language), similar Java programs.

Features Of JavaScript

- i. JavaScript was designed to add interactively to HTML pages.
- ii. JavaScript is a scripting language-a scripting language is a lightweight programming language.
- iii. A JavaScript is usually embedded directly in HTML pages.
- iv. A JavaScript is an interpreted language (means that script execute without preliminary compilation).
- v. All major browsers, like Netscape and Internet Explorer, support JavaScript.

Functions Of JavaScript

- i. JavaScript gives you the ability to perform the following functions
- ii. Control document appearance and content
- iii. Control the browser
- iv. Interact with document content
- v. Interact with the user
- vi. Read and write client state with cookies
- vii. Interact with applets
- viii. Manipulate Embedded Images

Limitations of JavaScript

- i. JavaScript does not have any graphics capabilities
- ii. Client-side JavaScript cannot read or write files
- iii. JavaScript does not support networking of any kind
- iv. JavaScript doesn't have any multithreading capabilities.

6.2 GOALS

- i. Improve efficiency in police department
- ii. Availability of online police service to citizens
- iii. Availability of data to senior officials for quick decision making
- iv. Better administration and co-ordination
- v. Speedy detection of crimes
- vi. Duplication of work avoided
- vii. Retrieval and access of data is easy
- viii. Paper work is drastically reduced
- ix. Automatic maintenance of registers

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