E-HUB

December 03, 2020

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ABSTRACT:

Description: E-hub is a software company that provides various types of software solutions to clients across India. It has recruited various programmers for software development. Each programmer is identified by the id, date of joining, experience, qualification, specialization, programming_languages_known. Specialization signifies the programming language for which he is most specialized in. The company may develop more than one software for one client. Each client is identified by his id, name, address, phone numbers. The details of software developed for the client such as date_of_commencement, date_of_release, status_of_software, etc. are also maintained. Each software may be developed by more than one programmer with one project leader.

Goals:

- To develop an effective software company management system.
- To include all possible Object-Oriented features to the project.
- To develop a front end of the system using the GUI – Swing components and JDBC to connect to databases.

Milestones:

- Developed an effective GUI for Software Management System
- Database created using PostgreSQL Connected to Java code Successfully
- Features for Admin,Programmer and Client are developed in GUI

INTRODUCTION:

Software Management System is a distributed application, developed to maintain the details of employees, software in any organization. It maintains the information about the personal details of their employees, personal details of the clients, software details etc.,

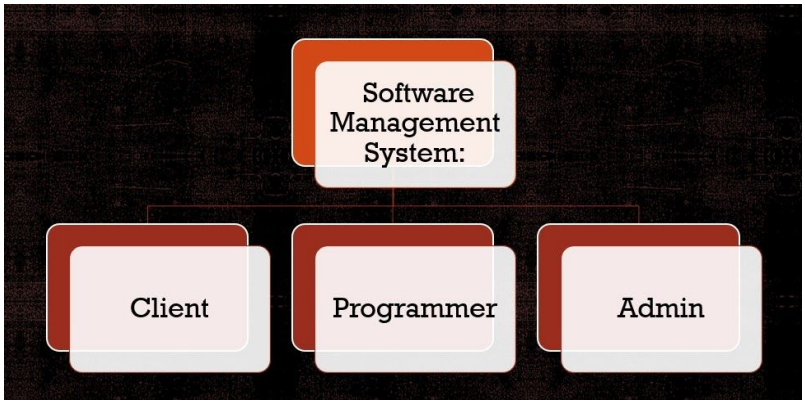
This document includes a development presentation of an information system for managing the staff data and software data within a small company or organization. The system as such as it has been developed is called the Software Management System. It consists of functionally related GUI (application program) and database.

It is simple to understand and can be used by anyone in the company. It is user friendly and just asks the user to follow step by step operations to retrieve data. It is fast and can perform operations for a company. This report's documentation goes through the whole process of both the application program and database development. It also comprises the development tools have been utilized for these purposes.

This software package has been developed using the powerful coding tool of JAVA known as ***Eclipse*** Front End and ***PostgreSQL*** at Back End to develop Database. The software is very user friendly. This version of the software has a multi-user approach.

System Design:

The three main users of Software Management System are:



At the very commencement, we proceeded to a decision to carry out the development of the project into the following steps:

1)Primary Design Phase: Describes the design of Use case diagram and class Diagram

2)Secondary Design Phase: Describes the Database Analyzing, Database Design and Implementation.

3)Interface Design Phase: Describes the design of the GUI and its implementation.

Primary Design Phase:

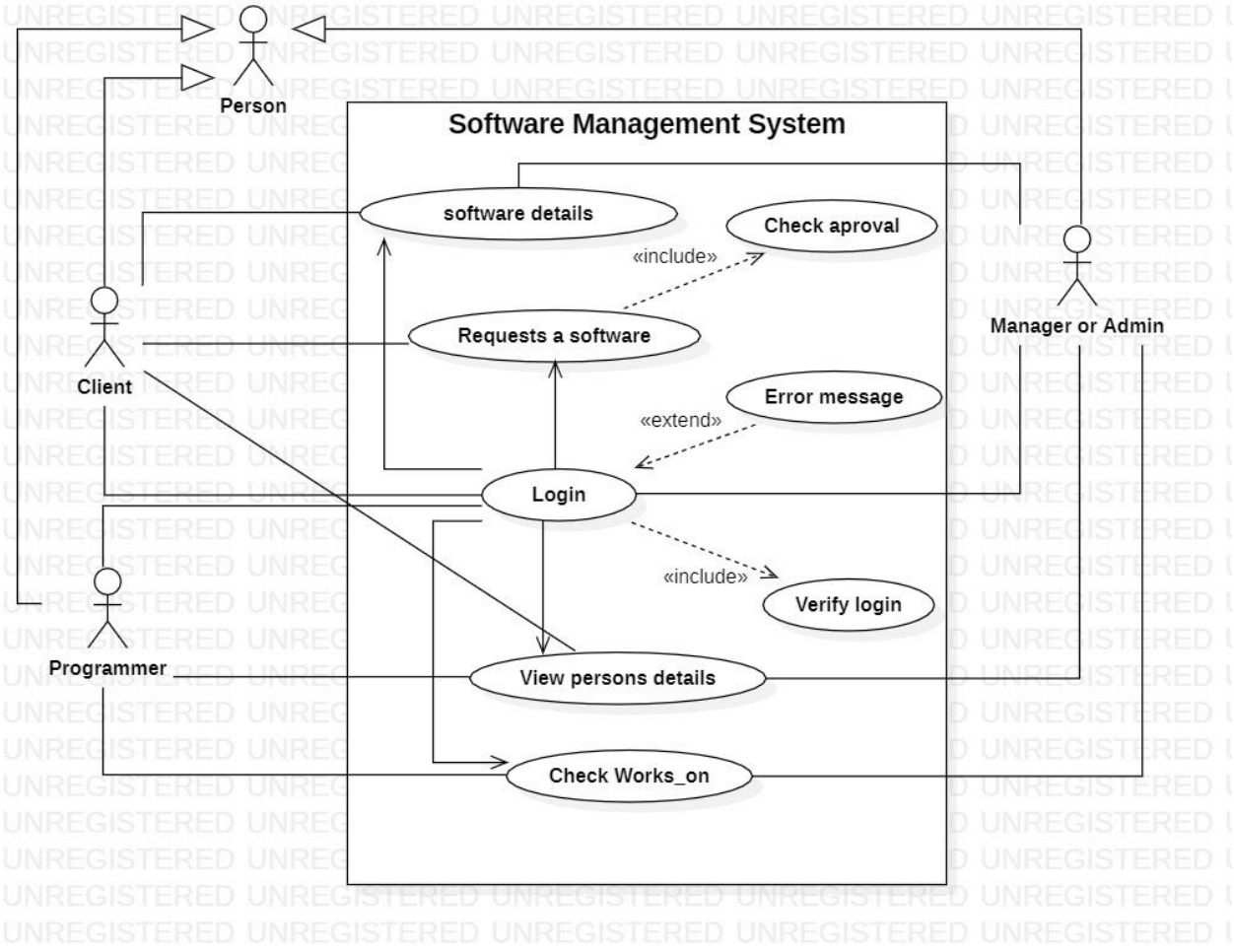
Use Case Diagram: A use case defines a goal-oriented set of interactions between external users and the system under consideration or development. Thus a Use Case Scenario is a description that illustrates, step by step, how a user is intending to use a system, essentially capturing the system behaviour from the user's point of view.

In order to create relevant use cases for the system, the following actors for the system have been identified:

- Client
- Admin(Manager)
- Programmer

Actor	Description
Client	He can request new software and check whether it got approval or not. He can view personal details and software details.
Admin	He can view Client & Programmer personal details and he can view all Softwares details. He can manage clients and admins.

Programmer	He can view his personal details and he can check which project he is working on.



Class Diagram: In the class diagram below,

A class diagram consists of 6 classes:

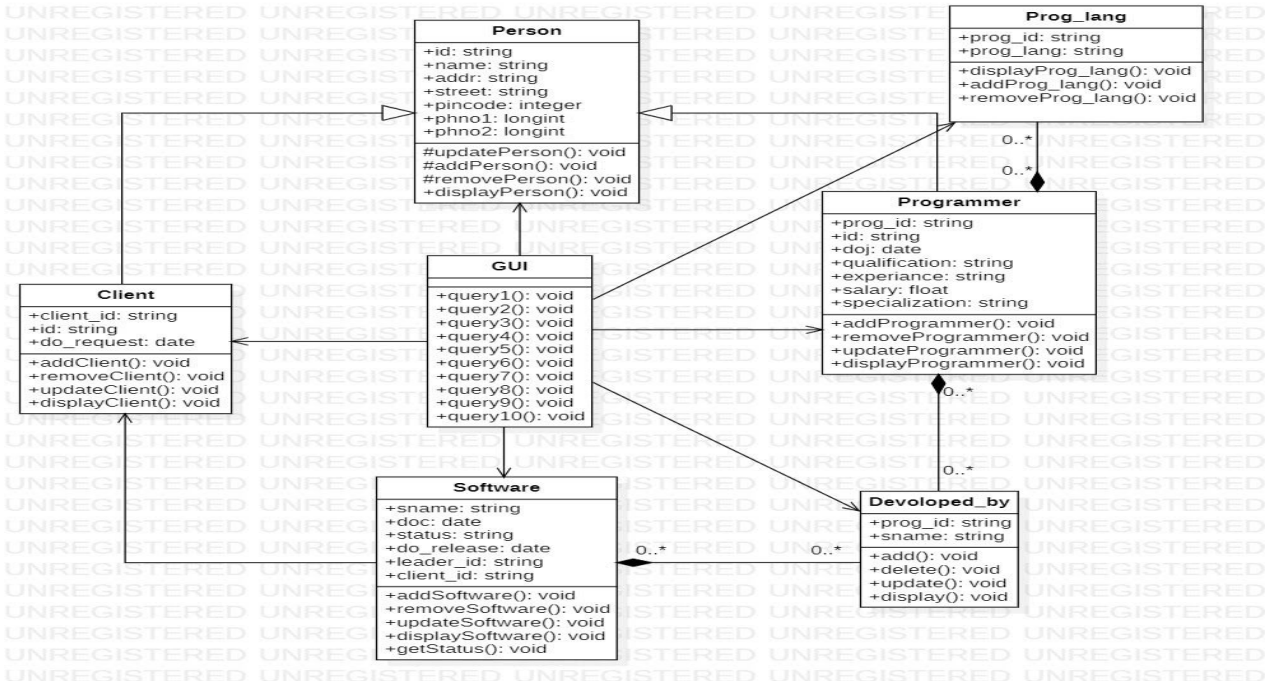
- GUI
- Login
- Client
- Admin

- Programmer
- Swings

All the connection with the database is done in the class of the swing which is used by creating an object in the class that uses it.

The main function is the GUI which calls the login class constructor. Based on the credentials it follows up with the next class. all the functionalities are done in the constructor itself so the only function in each class is the constructor.

First the person enters his username and password for login credentials which is verified by verifying login if the username or password is wrong it shows an error.The actor client can request a software which is verified by the company or view his personal details and the details of the softwares he ordered whereas programmer can check the project details on which he works on and he also can view his personal details the manager aka admin can access everything except for requesting software explain.



Secondary Design Phase:

It concerns all of the demands, put upon the database content and its functionality. The database should be designed and implemented in a way that the user would expect it to be.After taking a new and more effective approach, the Database and the Database Management System (DBMS) have been created. Most of the contemporary systems are based on the Database technology as a collection of logically related data and the DBMS as a software system allowing the users to define, create, maintain and control access to the Database.

It is a very good advantage that the information (data) can be populated in different tables (related to each other) and it is not necessary to store all data into one table. That leads to a less redundancy of data and reduces the required disk storage space, and speeds up processing as well.

So we divided the Database into 6 tables :

1)Person table:

	id [PK] character varying (4)	name character varying (20)	addr character varying (20)	street character varying (20)	pincode integer	phno1 bigint	phno2 bigint
1	A1	Bob	Avalon heights	Gold	423999	1234567890	[null]
2	A2	Ron	Hogwarts mansion	Dogwood	543290	8765432109	[null]
3	B1	Harry	Hogwarts mansion	Park	543290	7654321098	6543210987
4	B2	Hermione	Carrington towers	Sunset	381245	9999988888	9494942222
5	C1	Draco	Catalina towers	Brich	678904	8732167890	[null]
6	C2	Alisa	Park avenue	Dollar	532109	9321876504	7788778877
7	D1	John	Swing Hearts	Pine	679804	8372167890	[null]
8	E1	Victor	May flower	Evergreen	246784	9492678154	[null]
9	E2	Drake	Komali homes	Maple	346254	9386528930	[null]

2)Client table:

	client_id [PK] character varying (4)	id character varying (4)	do_request date
1	CL01	A2	2018-05-08
2	CL02	C2	2019-06-07
3	CL03	E2	2019-05-11
4	CL04	B2	2019-07-23

3)Programmer table:

	prog_id [PK] character varying (4)	id character varying (4)	doj date	qualification character varying (20)	experience character varying (15)	salary numeric (8,2)	specialization character varying (10)
1	PR2	B1	2017-01...	MTech	3 Years	155000.00	Kotlin
2	PR3	C1	2017-02...	MTech	2 Years	105000.00	AWS
3	PR5	E1	2017-01...	MCA	3 Years	134000.00	Python
4	PR1	A1	2018-02...	BTech	2 Years	102027.60	React JS
5	PR4	D1	2018-03...	BCA	11 Months	78000.00	Oracle

4)Prog_Lang table:

	prog_id [PK] character varying (4)	prog_lang [PK] character varying (10)
1	PR1	HTML
2	PR1	ReactJS
3	PR1	PHP
4	PR2	Kotlin
5	PR2	C++
6	PR3	AWS
7	PR3	Python
8	PR4	R
9	PR4	Python
10	PR4	Oracle
11	PR5	Python

5)Software table:

	sname [PK] character varying (50)	doc date	status character varying (20)	do_release date	leader_id character varying (4)	client_id character varying (4)
1	Android Task Monitoring	2018-06-10	Completed	2019-03-12	PR1	CL01
2	Online Auction	2019-05-24	In Process	[null]	PR4	CL03
3	Online Optics	2019-05-10	Cancelled	[null]	PR1	CL01
4	Events Management Platform	2019-08-20	In Process	[null]	PR4	CL04
5	Secure Wireless Communication	2019-07-15	In Process	[null]	PR5	CL02

6)Developed_by table:

	prog_id [PK] character varying (4)	sname [PK] character varying (50)
1	PR1	Android Task Monitoring
2	PR2	Android Task Monitoring
3	PR3	Android Task Monitoring
4	PR4	Android Task Monitoring
5	PR2	Events Management Platform
6	PR3	Events Management Platform
7	PR4	Events Management Platform
8	PR1	Online Auction
9	PR5	Online Auction
10	PR4	Online Auction
11	PR5	Secure Wireless Communication
12	PR3	Secure Wireless Communication

6 tables are created and data inserted successfully and using JDBC with the help of postgresql driver database is connected to java code.

Interface Design Phase:

The Interface we designed has the same header/logo, heading style, fonts, navigations etc. The layout of each page has a good contrast between the text and background area.The use of color, text, fonts and graphics has been carefully considered and used to ensure that the site is visually appealing to its visitors.

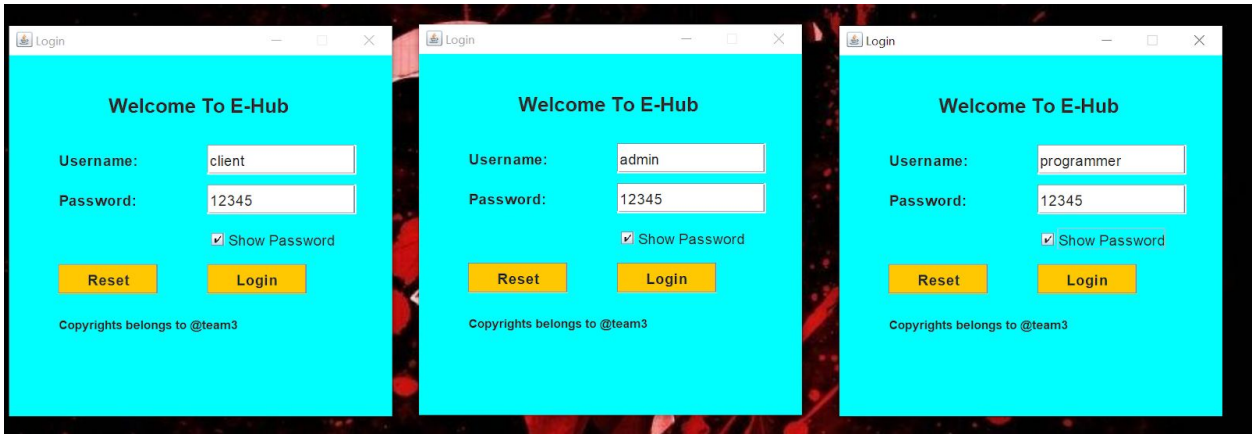
The interface is divided into 4 Parts:

- ➢ Login Interface
- ➢ Client Interface
- ➢ Programmer Interface

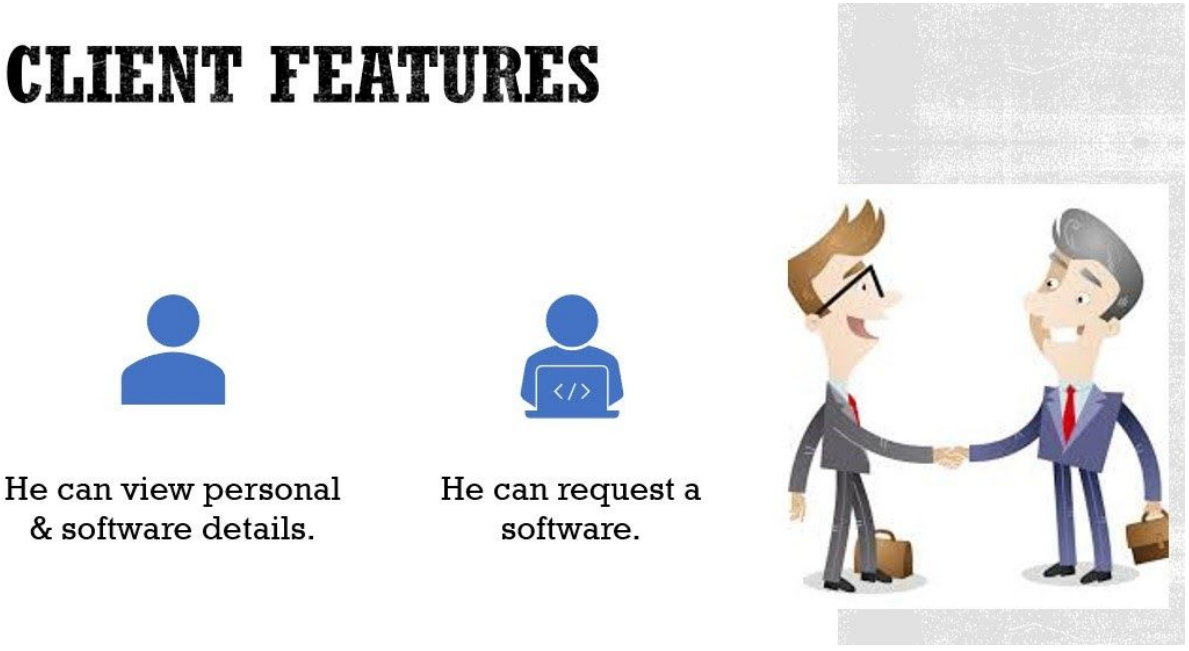
➢ Admin Interface

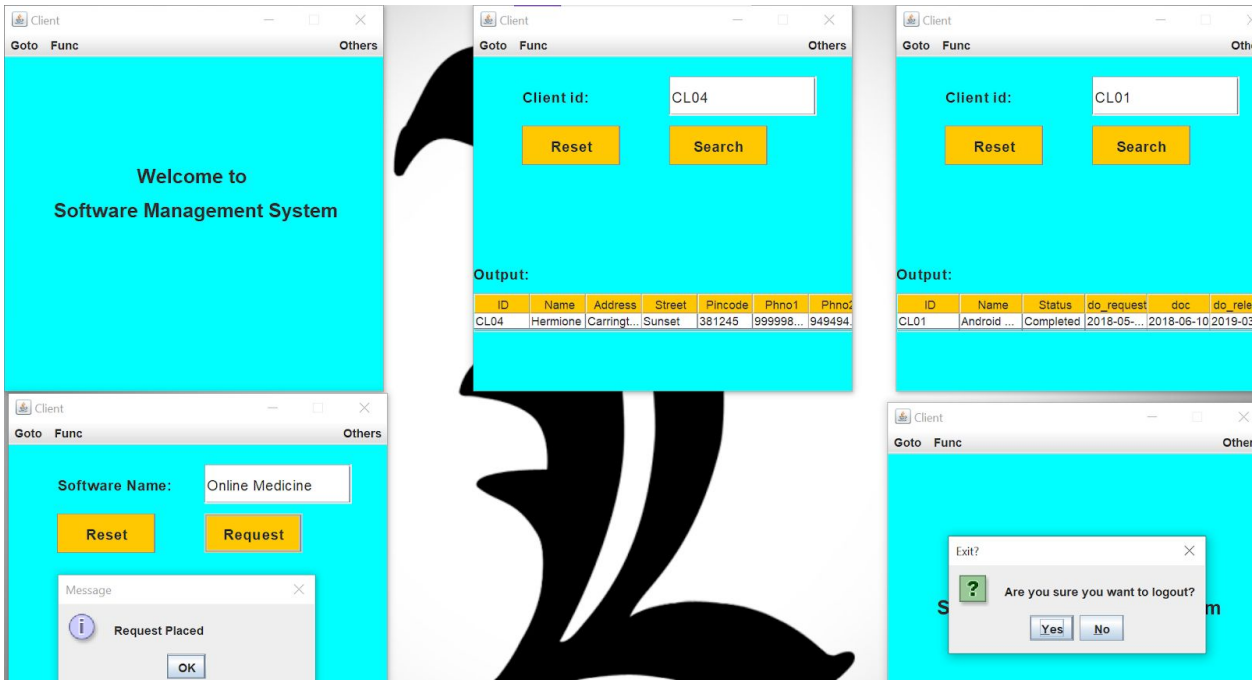
1)Login Interface:

A user can login as client if he is client else as admin if he is admin or as programmer if he is a programmer.

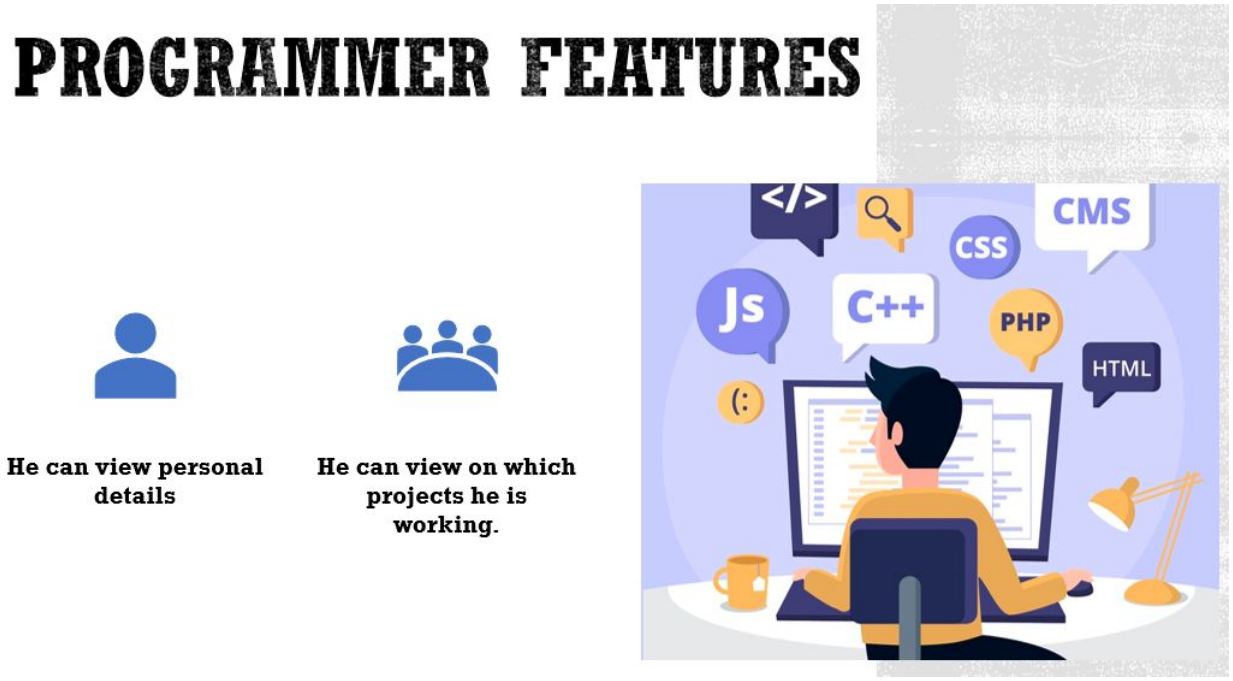


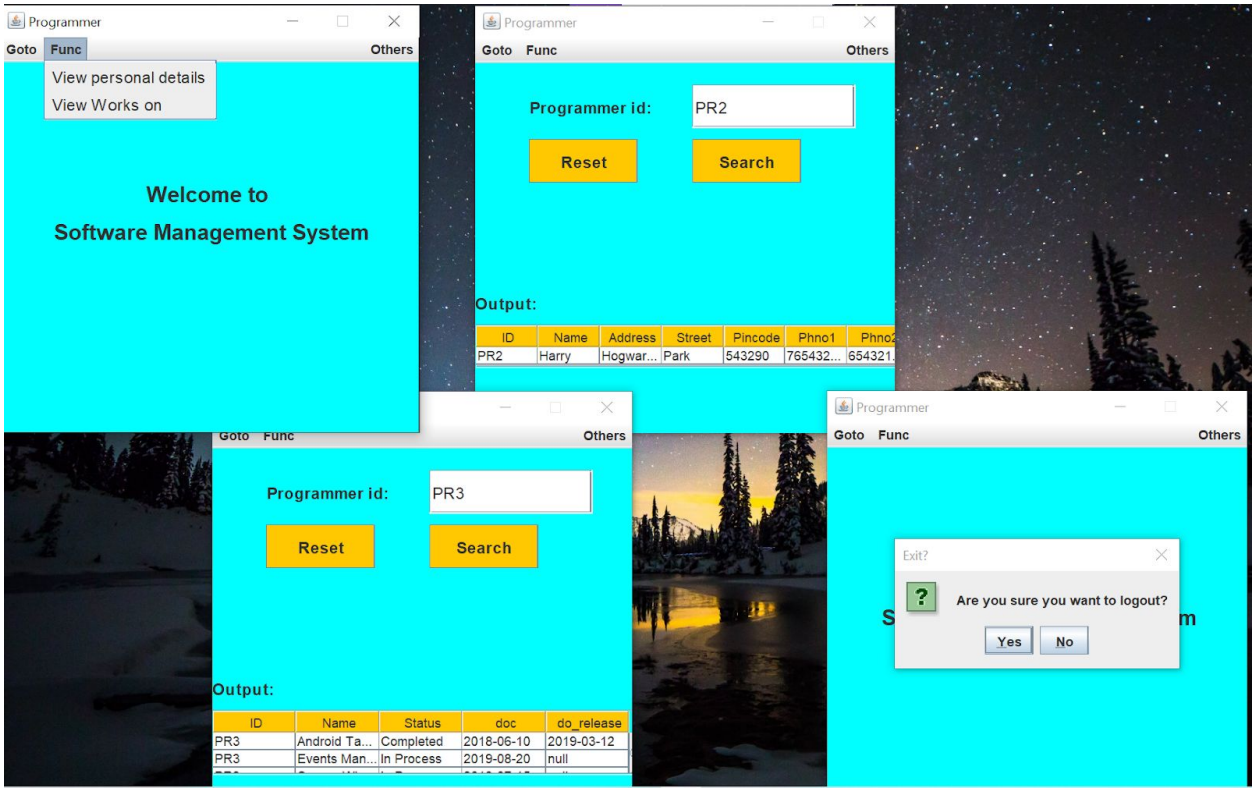
2)Client Interface:



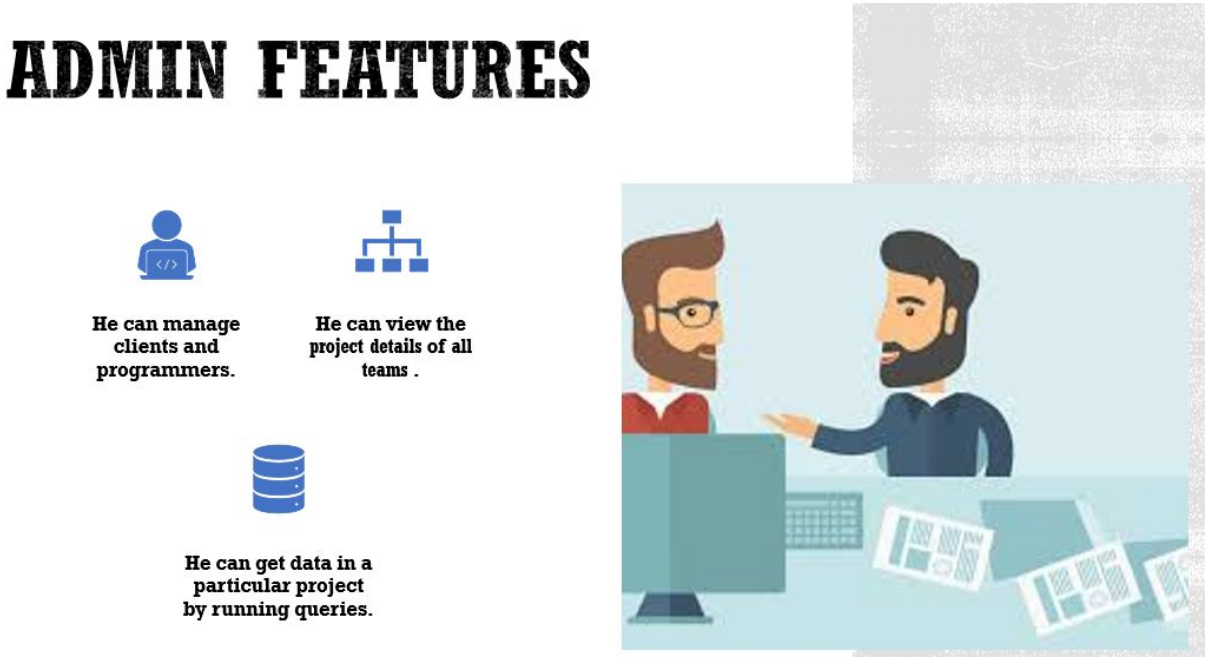


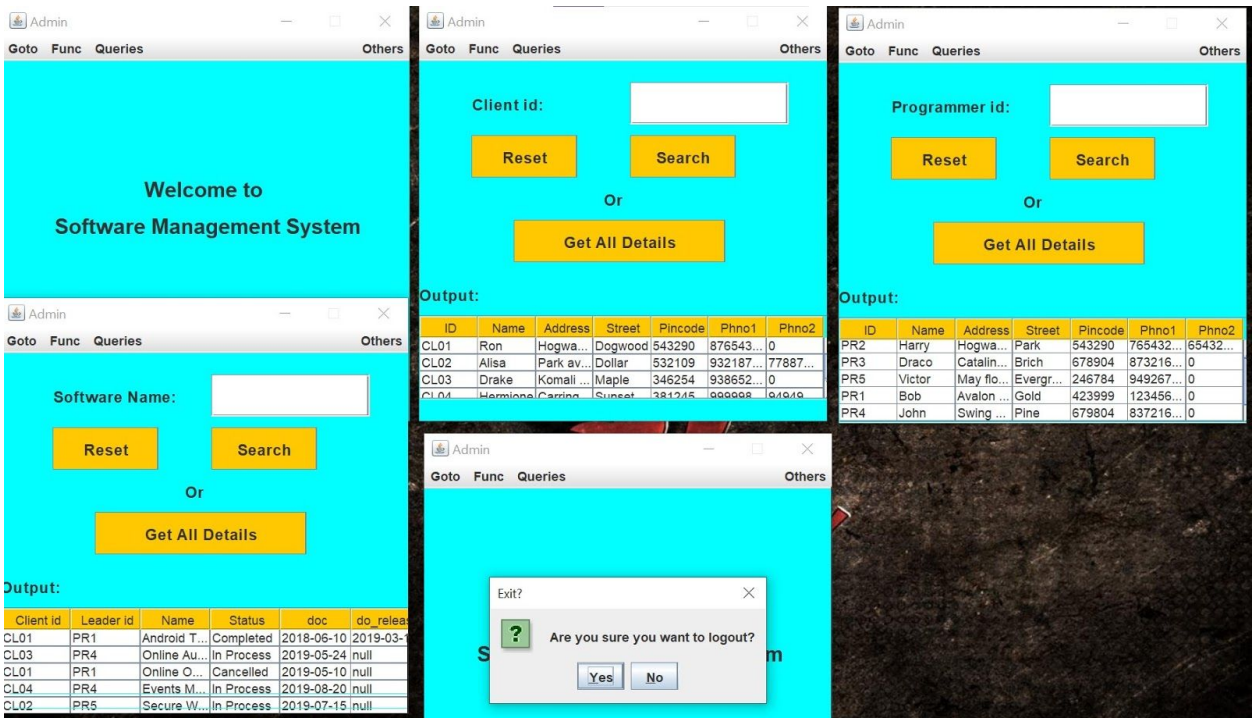
3)Programmer Interface:

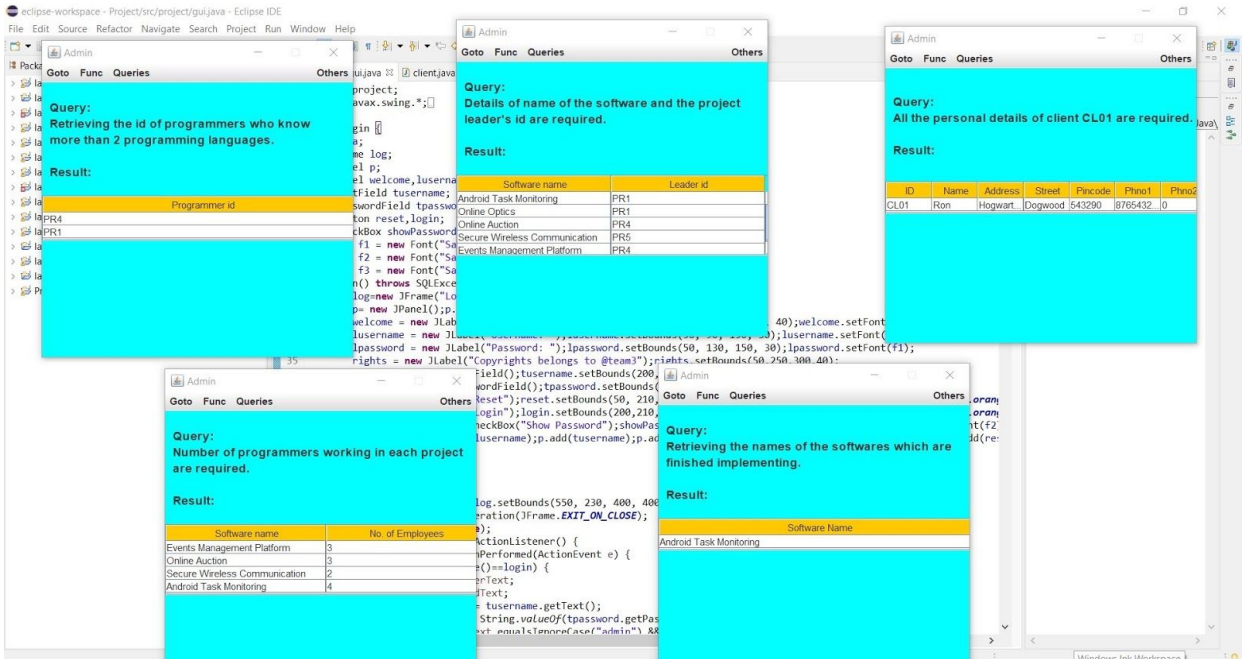


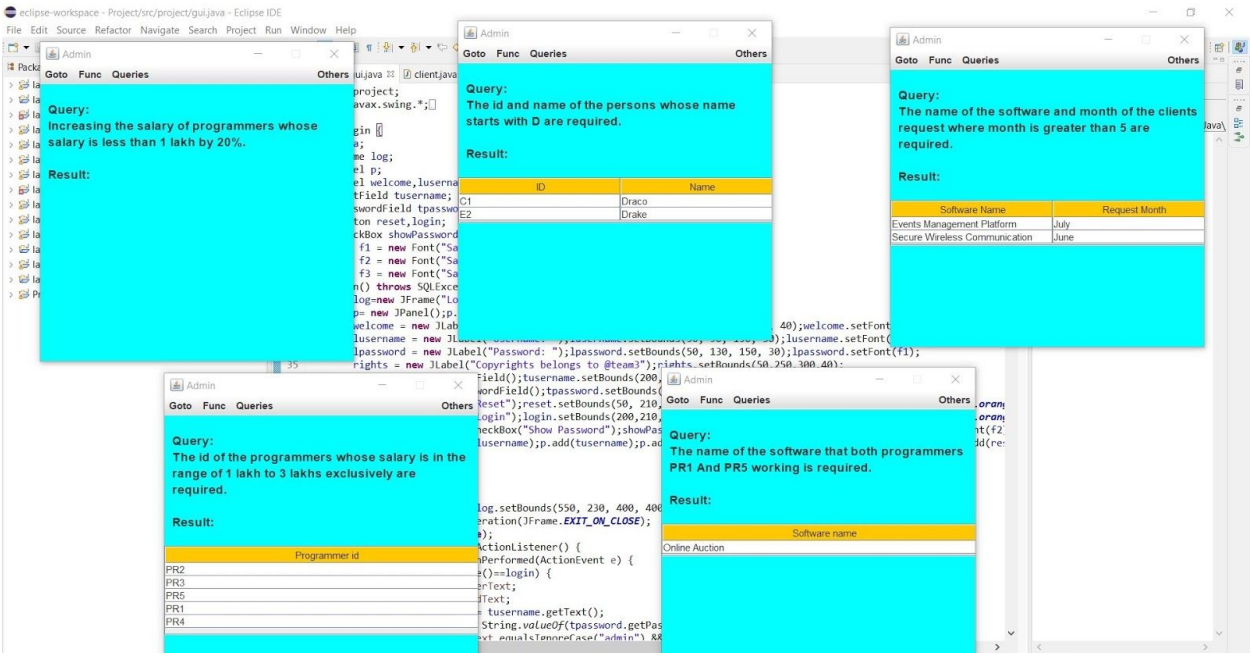


4)Admin Interface:




Admin
Goto Func Queries Others
Welcome to
Software Management System
Client id:
Reset
Search
Or
Get All Details
Output:
ID Name Address Street Pincode Phno1 Phno2
CL01 Ron Hogwa... Dogwood 543290 876543... 0
CL02 Alisa Park av... Dollar 532109 932187... 77887...
CL03 Drake Komali ... Maple 346254 938652... 0
Programmer id:
PR2 Harry Hogwa... Park 543290 765432... 65432...
PR3 Draco Catalin... Brich 678904 873216... 0
PR5 Victor May flo... Evergr... 246784 949267... 0
PR1 Bob Avalon ... Gold 423999 123456... 0
PR4 John Swing ... Pine 679804 837216... 0
Software Name:
Client id Leader id Name Status doc
CL01 PR1 Android T... Completed 2018-06-10
CL03 PR4 Online Au... In Process 2019-05-24 null
CL01 PR1 Online O... Cancelled 2019-05-10 null
CL04 PR4 Events M... In Process 2019-08-20 null
CL02 PR5 Secure W... In Process 2019-07-15 null
Exit?
Are you sure you want to logout?
Yes
No


Query:
Retrieving the id of programmers who know more than 2 programming languages.
Result:
Programmer id
PR4
PR1
Query:
Details of name of the software and the project leader's id are required.
Result:
Software name Leader id
Android Task Monitoring PR1
Online Optics PR1
Online Auction PR4
Secure Wireless Communication PR5
Events Management Platform PR4
Query:
All the personal details of client CL01 are required.
Result:
ID Name Address Street Pincode Phno1 Phno2
CL01 Ron Hogwart... Dogwood 543290 8765432... 0
Query:
Number of programmers working in each project are required.
Result:
Software name No. of Employees
Events Management Platform 3
Online Auction 3
Secure Wireless Communication 2
Android Task Monitoring 4
Query:
Retrieving the names of the softwares which are finished implementing.
Result:
Software Name
Android Task Monitoring



Conclusion:

This project is helpful in maintaining software management system records, In this report, a Software Management system's development has been presented. It was emphasized on the basic steps, consequently taken during the project's development course as a particular attention was turned to the basic operative functions performed upon the data into the database. The report's content comprises the whole task solution, starting from the programming environments have been selected, going through the database, the application's analysis and construction, and finishing with the code-implementation.Composition, Association and some extra OOPS features are used in this development.

The software product produced was fairly good, it achieved most of the user requirements, the user interface is good and is very easy to navigate, and even novice users can find their way around the web application easily. The admin side validation is excellent.The software is capable of easy storage of information related to employees,softwares and clients through databases.

Additional Resources:

Project Code and Other files link

Github link for code files

Trail: Creating a GUI With JFC/Swing (The Java™ Tutorials) (oracle.com)

Lesson: JDBC Basics (The Java™ Tutorials > JDBC Database Access) (oracle.com)

Connecting to the Database (postgresql.org)