ADVANCED JAVA PROGRAMMING PROJECT DESCRIPTION

UR Huye campus – Year 2 BIT
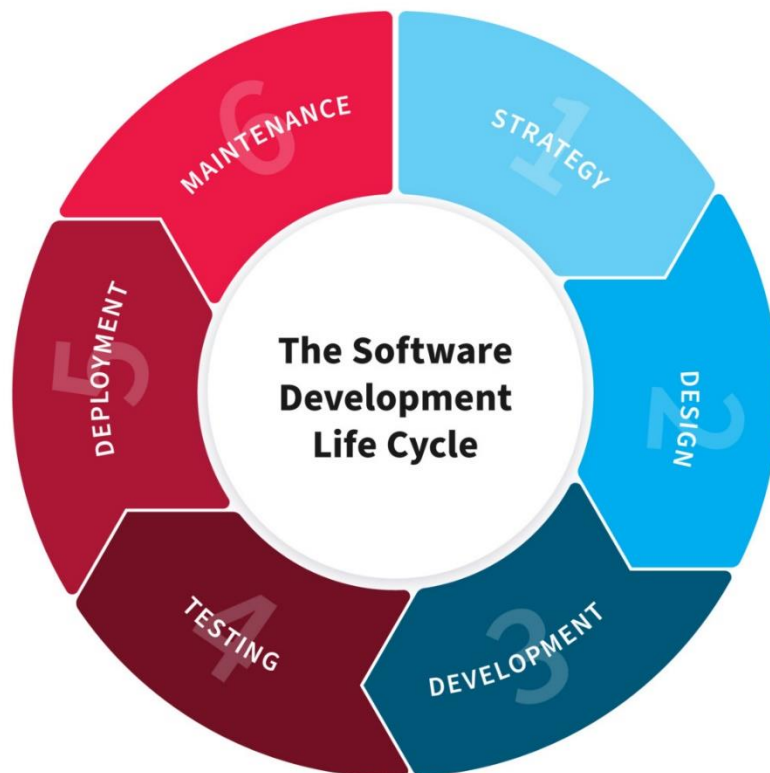
Group 3 Subgroup 11

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Project Name: Bus Management System

1. **<u>Planning</u>**

The **Bus Management System** is a software application that sight the automation of bus records and information management.

The software will provide complement centralized platform for administration to access and manage bus data such as passenger information, booked seats, bus directions and bus availability.

The goals of the BMS (Bus Management System) are follows:

- ✓ Automatically management of records and information of bus.
- ✓ Reducing duplicate of data that caused by manually system.
- ✓ Data accuracy improvement.
- ✓ Easy access of information.
- ✓ Quick and efficiency services.
- ✓ Decreasing the delay in services delivering.

The objectives of the BMS (Bus Management System) are follows:

- ✓ Development of system that allows administrator to input, store, manage and retrieve or view bus information.
- ✓ Providing a user-friendly graphic user interface for admin to access and manage bus data.
- ✓ To certify data security and confidentiality for bus records.
- ✓ To develop system that will provide better and quality service.
- ✓ Managing details of bus, tickets, booking and seats information.

The problem this BMS (Bus Management System) need to solve are follows:

- ✓ Inefficiency of manually system that are currently used.
- ✓ Duplication of data and errors.
- ✓ Hard to monitor the bus information and its movement to be improved.
- ✓ Hard in maintaining passenger details
- ✓ Insecurity of the bus information

The Bus Management System is the project that look forward the solutions that will achieves the goals and objectives that are listed upwards.

2. **Design**

Technical requirements:

- ✓ Our project developed as a java application using Apache NetBeans IDE.
- ✓ The project used MySQL workbench as the database management system to store and manage bus data.
- ✓ Other technical requirement is found in development and in deployment of the system.

Functional requirement:

- ✓ Security measurement for example (logins feature to authenticate the admins).
- ✓ The system will allow the searching of data.
- ✓ The system will allow the input, storing and viewing of bus information.
- ✓ The system will also include the report feature that will be helpful in monitoring bus data for improvement.
- ✓ System will allow access and management of records to the administration.

User Interaction:

- ✓ Admin will have full access to all bus information.
- ✓ Users have their user-friendly interface that will be helpful in navigation and in interaction of the system.
- ✓ The system has error handling in place to make sure data integrity and to guide the user through the process.

3. **Development**

Development of our project called "**Bus Management System**" in java using Apache NetBeans IDE and MySQL for database the details are follows:

Database designing and setting up:

We used MySQL as RDBMS (Relational Database Management System).

- ✓ We created database schema called busmanagment and tables that align with the functional requirement of the system.
- ✓ According to connectivity we used "mysql-connector-java 5.1.23-bin.jar "driver.
- ✓ About creating tables, we used SQL scripts.
- ✓ Definition of relationships between tables are well created.

About project development:

- ✓ Opening of NetBeans IDE to create new java project for bus management system.
- ✓ Get on well the interfaces using java swings.
- ✓ Implementation of any good method that handle the insertion, manipulation and validation of data (source code).
- ✓ Holding on the communication between application and database.
- ✓ Making sure that if the data is being stored, viewed and updated correctly.

4. **Testing**

The bus management system project has test plan that follows:

- ✓ Safety should be tested (we tested the safety of our system).
- ✓ Displaying of interfaces was tested.
- ✓ Well notification delivering that align with functional requirement of our system was tested.
- ✓ Testing if the components of the system, such as the database and the user interface works correctly.
- ✓ Integration testing and testing whole system to make sure its meeting the functional and technical requirements.
- ✓ Fixing any defects or bugs that are identified during testing.
- ✓ Collecting feedbacks from users and use it to make improvement.

NB: Testing plan is done to verify that all the functionality that are integrated works correctly.

5. **Deployment**

The project is uploaded to GitHub for easy access and maintenance.

Project link: https://github.com/uwase250/buss-management-system

Installation, testing and performance of bus management system was conducted on local computer as:

Extracting project from one computer to another using external device (flash drive); save the copied database file and project file on desktop and NetBeans documents after you open WAMP server you search "localhost" import database by creating database with the same name as the original created one.

Installation:

- ➢ Tools such as Apache NetBeans IDE, MySQL, WAMP or XAMP, Java Development Kit (JDK) were installed as they are necessary for java project development.
- ➢ Download and configure the necessary settings for the system such as setting up MySQL workbench and mysql-java-connector driver, jcalendar-1.4.jar and beansbinding-1.2.1.jar tools.
- ➢ Open Apache NetBeans and develop a project after ensuring that all dependencies or necessities are installed.
- ➢ Run the project on local computer to confirm that it is working as expected.

6. <u>**Maintenance**</u>

- ✓ Regularly watch over the system for any issue or bug.
- ✓ Conduct test on system to confirm it didn't break and still working.
- ✓ Provide user support and troubleshoot in case there is issue arise.
- ✓ Collect the feedback from users for improvement.
- ✓ Continuously fix defects and bugs that are identified.

As a conclusion, Bus management system is better solution for discovered problems in bus transport management accessibility of how services are provided such as how people spends more time on manually ticket getting and booking, unfair treatment and other issues.

The project follow standards of development process as planning, design, development, testing, deployment and maintenance.

THE END