Submitted to :

Mr. Deepak Khadka

Project Teacher

Submitted by :

Hawana Tamang (5413)

Kushal Pathak (5398)

Romiya Dangol (5402)

Sama Nemkul Shrestha (5399)

Table of Content

1.Application overview

Bike rental system is a desktop- based application which is the combination of reservation and information system. Hence, this system will be focusing on the customers who would like to reserve bike and travel individually. The aim of this project is to create a bike renting management system for bike rental businesses.

This system will be a desktop-based application and consist of two parts. The main aim of our project is to book vehicles for rent through this system service. The first part of the system will provide with a portal where customers can log in to the system and search for desired vehicle and reserve them for renting. The second part of the system will allow the business to update details about new vehicles, payment details and other details easily. Maintaining database containing information about the users who have filled their details while registration. The system will collect renting details from the customer and provide them the basic cost of the transaction and confirmation of the request. Business side users can update and renew details about vehicles and payments etc.

2. Development Methodology

For this project, we have followed our standard development model for development. A brief overview of the waterfall model SDLC phases is as follows below:

2.1 Requirement Analysis

Our team, in consultation with the customer, studies the complete system in-depth as per the requirements of the user in the real entity. The project document will be created simultaneously with the coding part containing the algorithm, flowchart, scope objectives etc.

2.2 Software Design Phase

Software design is the process of designing the architecture, components, and interfaces for a software so that it meets the end-user requirements. A good software design is to organize the program modules in such a way that are easy to develop and change. There are many strategies or techniques for performing software design.

- **Importance**:
  - If any pre-existing code need to be understood, organized, and pieced together.
  - It is common for the project team to have to write some code and produce original programs that support the application logic of the system.
- **Bottom - up approach:** Bottom –up is an approach used in integration testing, which is a level of software testing where individual units are combined and tested as groups. Integration Testing is performed by software testers once unit testing is completed and before the inception of system testing.
- **Advantages of Bottom - up approach:**
  - The bottom-up style allows managers to communicate goals and value through milestone planning, and team members are encouraged to develop personal to-do lists with the steps necessary to reach the milestones on their own.
  - A clear advantage of this approach is that it empowers team members to think more creatively.

2.3 Development and Integration

The system's integration test function is to ensure that the developed system meet all the technical requirements with the components and subsystems integrated. All the modules/functions are tested. Individual functions are provided and output is generated. The code is tested through the unit testing.

- **Unit Testing:** It is a testing technique using which individual modules are tested to determine if there are any issues to be fixed. It is concerned with functional correctness of the standalone modules. The main aim is to isolate each unit of the system to identify, analyze and fix the defects.
- **Advantages of unit testing**
    - Reduces defects in the newly developed features or reduces bugs when changing the existing functionality.
    - Reduces Cost of testing defects are captured in very early phase

2.4 Testing

System testing will be done at this stage by us with every possible test plan and make further implementations in the project if necessary

2.5 Releases

The system will be released to the user after the bug fixing and successful system verification by the concerned authorities and the developing team.

2.6 Post production Support and Maintenance

Post production and support is provided on the project. In case of maintenance a change request log is maintained in order to keep track of changes and support requests

3. Associated Risks Evaluation

No project specific risk has been identified at this time. We must be strict when it comes to basic requirements, such as Citizen ID Card or Family Card. Prospective customers who do not agree with the terms may be indicated as fraudsters. Therefore, do not hesitate to give requirements and do not be afraid of losing customers while doing this. Prospective customer assessment has the right to assess prospective bike renters before transaction. No need to be too investigate, because they will make potential customer feel uncomfortable. Start with simple assessment by observing their attitude and speech. We can also give some questions regarding the purpose of bike rental. With this brief interview, we can find out whether they are true customers or just unscrupulous. If you find a suspicious answer or attitude that leads to high risk, you may not approve the rental. Furthermore, we should protect our bikes and one of protecting bike is using bike tracking devices to monitor our bikes.

4. Software Development Lifecycle

As we know, Software Development Life Cycle (SDLC) is a systematic process for building software that ensures the quality and correctness of the software built, we have listed out some of the main points for the project and explained below:

4.1. Objectives

The objectives of the system are: -

- **Faster Process:** To make sure a user gets his desire bike as early as possible; the rental management system will provide a faster response to complete the process.
- **Minimize paperwork:** As all the system us computerized, there is no need to fill any application form for renting purpose. So, the paperwork will be very less.
- **Centralized:** All types of data and the activities related to the system will be kept in a file so that it is easy to monitor the system and provide the customer the best service.

This software package can be readily used by non-programming personal avoiding human handled chance of error. This project is used by two types of personnel

i. **Admin**
ii. **User**

Admin can maintain daily updates in details and print reports according to need.

Administrator must be an authorized user.

User can register themselves and make choices according to their need from the list of bikes provided.

System can be upgraded according to user's and administrator's requirements with little changes.

New features can be added as per requirements.

4.2. Scope

This project has a large scope as it has the following features which help in making it easy to use, understand and modify it:

- User registration.
- No need to do Paper work.
- Manage the information of bike and the user.
- To increase the accuracy and efficiency of managing the bike payment.
- To satisfy the user requirement.
- In the future, this system has the scope of being used as a web version where both the admin and user can easily access the system with their individual username and password.

This software package can be readily used by non -programming personal avoiding human handled chance of error. This project is used by two types of users

i. Admin
ii. User

Main points are:

- Simplified management of User information.
- Easy to understand by User and operator

4.3. Phases

The execution phases involved are broadly divided into following phases as listed below:

- Project Start – up:
  - Project Acquisition
  - Estimation
  - Requirement Analysis
  - Project Management Planning
- Project Execution:
  - Design
  - Development and Integration
  - Testing
- Project Wind –up:
  - User Acceptance
  - Sign – Off and Project Closure

4.4. Significance of the project

The significance of the project is to provide the following benefits:

- The significance of the project is to provide good rental services.
- Secured Transaction
- The significance of the project is to meet the needs of the user.
- Manage the hardcopy data into softcopy.
- The significance of the project is to make paper free environment.
- This new system allows security to the data, by means of authorized users. Both admin and user has a valid user name and password and can access the materials.
- The new system will allow the admin to quickly insert, delete, update and retrieve data from the system.

4.5. Phases – Entry, Task, Verification and Exit Criteria:

The execution of the various phases is explained in detail below:

4.5.1. Requirement Analysis

In software and system engineering, a functional requirement defines a function of a system or its component, where a function is described as a specification of behavior between input and outputs.