High Level Design & Low-Level Design

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# Introduction

This project Bug Tracking System in C is done using C programming and data structures. Bug Tracking is the process of logging and monitoring bugs or errors during software testing. It is also referred to as defect tracking or issue tracking.A bug tracking system is a software application that is designed to help quality assurance and programmers keep track of reported software bugs in their work.An efficient bug tracking system that can be mapped well to your development and quality processes is an invaluable tool .Most of the bug tracking systems support the triage of incoming bugs that is setting the priority of a bug and assigning it to a particular developer.

**1.1 Intended Audience:**

The audience set for this project “BUG TRACKING SYSTEM” would include employees , developers and managers to keep track of reported software bugs in their work.

## Acronyms/Abbreviations

|  |  |
| --- | --- |
| eid | employeeid |
| pro | project |

## Project Purpose

The purpose of the Bug Tracking System is to track the bugs and report it to the project manager and developer.

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## Key Project Objectives

Bug Tracking System is used to test the application for the bugs and report it to the project manager and developer. It helps us to foresee the risk and challenges that could detail the completion a project. It is used to help business and individuals track projects.

## Project Scope

The Bug Tracking System application in C Programming helps to test the application and day you need by being built in the C programming language.

### In Scope

Basically, three operations can be done in this bug tracking application. Adding, deleting, modifying projects can be done. Bugs are identified and produce bug report. The reports are also prioritized.

## Functional Overview

The functions that are used for login and registration of employee are mentioned below:

* int login(); This function is used for employee login
* void registration(); This function is used for employee registration
* void bug\_menu(); This function is used to view bug tracking menu

The functions that are used to manage projects in bug tracking menu:

* void addproject(); This function is used to add projects
* void deleteproject(); This function is used to delete projects if ticket is raised
* void modifyproject(); This function is used to modify projects
* void add\_employee\_to\_project(); This function is used to add employeeid s

The functions that are used to manage tickets in bug tracking menu:

* addticket(); This function is used to add ticket
* displayticket(); This function is used to display ticket
* closeticket(); This function is used to close ticket
* filebug(); This function is used to get bug report
* changestatus(); This function is used to change the status of the project
* report(); This function is used to

The function that are used to manage reports in bug tracking menu

* void openReports(); This function is used to prioritize list of reports open
* void assigned();This function is used to prioritize reports assigned by loggedin employee
* void created(); This function is used to prioritize reports created by logged in employee

## 

## Risks

Once if the ticket is raised and project gets deleted, then we will not be able to retrieve the data.

# Design Overview

* 1. **Architectural Strategies:**

Bug tracking system contains following modules:

Employee Login:

Employee: Employee logins by entering userid,user role and password.If login is not successful ask user to re-enter login credentials and allow only 3 chances for trying again.

Employee Registration:

The employee can register by entering name,email address,employeeID and phone number.

Bug Tracking Menu:

If the employee gets successfully logged in then bug tracking menu will be displayed which contains three functions.They are

* Manage Projects
* Manage Tickets
* Manage Reports

Manage Projects:

In this function,projects created by login employee can be modified and the projects which donot have any tickets raised can be deleted.

Specifications:

* Add: Here project details will be added i.e. project\_id,description,start date,end date,number of members,department.
* Delete: The projects which do not have any tickets raised will be deleted.
* Modify: Project details can be modified.
* Quit

Manage Tickets:

In this function information about ticket is stored in “tickets.txt” file where one line corresponds to one bug.

Specifications:

* Add: Ticket details will be added.
* Close: If bugs get resolved ticket will be closed.
* Get BUG Report: Bug details will be displayed i.e. bug\_id,bug\_name and project\_id.
* Add note
* Modify: Tickets can be modified with the following operations

a)Open:

b)Assigned

c)Fixed

d)Submitted

e)Quality Checked

f)Close

* Quit

Manage Reports:

In this function report is generated as per priority of project or projects assigned by logged in employee.

Specifications:

1. Prioritize list of reports not closed
2. Prioritize list of reports assigned to logged in employee
3. Prioritize list of reports created by logged in employee.
4. Quit

### Error Detection / Exceptional Handling

* We have used valgrind for error detection and exceptional handling. We have integrated the project again and again to resolve the errors.We have used the validation for exception handling. If the employee doesn’t have any pre-existing account , the user has to register one else it won’t perform any functions and would give “not found” or “Invalid entry” error.
* While creating the account ,employee should first enter the name followed by phone number,emailID,employeeID,department, else it will display “Already exist” and “Invalid length ” error for the respective cases. We check the validity of the name ,email address & phone number entered with the help of exception handling .If the name entered has the length less than 5 or greater than 25 or the phone number entered is either already existing or of not length 10 digit , an error message will be flashed.

### Memory Management

There are two ways in which the memory is getting managed:

Static

Dynamic

The variables which are assigned in the function occupies the size according to their datatype. While we used linked list for employee ids so, according to the employee ids, the size is occupied dynamically.

### Performance

Performance is based on the configuration of the system. This application gets load fast. It doesn't take much time to complete its task.

## Flow-Chart

## ER-Diagram



# Environment Description

Linux is a Unix-like, open source and community-developed operating system (OS) for computers, servers, mainframes, mobile devices and embedded devices. It is supported on almost every major computer platform, making it one of the most widely supported operating systems. GCC compiler is used to compile and run a C program on the Linux operating system.

## Time Zone Support

Supported on any given time (preferred Indian Standard time).

## Language Support

C programming is a general-purpose, procedural, imperative computer programming language developed in 1972 by Dennis M. Ritchie at the Bell Telephone Laboratories to develop the UNIX operating system. C is easy to get started with, especially if you're running Linux. You can already run C code because Linux systems include the GNU C library. To write and build it, all you need to do is install a compiler, open a text editor, and start coding.

## User Desktop Requirements

Windows system with minimum 4GB of RAM is required.

1. **-Side Requirements: -**

* 64-bit processor, 1 GHz or faster
* At least 2 GB free hard drive space
* At least 1GB RAM

**4.1** Deployment Considerations: -

* + Local storage is used
  + No network latency to consider
  + To scale buy a bigger CPU, more memory, larger hard drive, or additional hardware

**4.2** Application Server Disk Space: -

No such disk space is required as the program is fully functional on online

IDE(s) as well. Local Operating System is required and two txt file to store the

records of processes.

**4.3**  Database Server Disk Space: -

No such disk space is required as the program is fully functional on online IDE(s) as

well. Local Operating System is required and two txt file to store the records of

processes.

**4.4**. Integration Requirements: -

* Language: - C
* Tools: - Valgrind, Makefile ,splint
* Complier: - gcc
* Linux Environment

**4.5**. Network: - End to End

# References:

* All training classes conducted by trainer.
* All lab-sessions conducted during training.
* Google search