Bug Tracking System

Prepared by :
1. Rahul Padhy (114CS0111)
2. Shuvankar Mishra (114CS0110)

What is a BUG ?

- A **BUG** is a common term used to describe an error, flaw, mistake, failure or fault in a computer program or system that produces an incorrect or unexpected result or causes it to behave in an unexpected way.
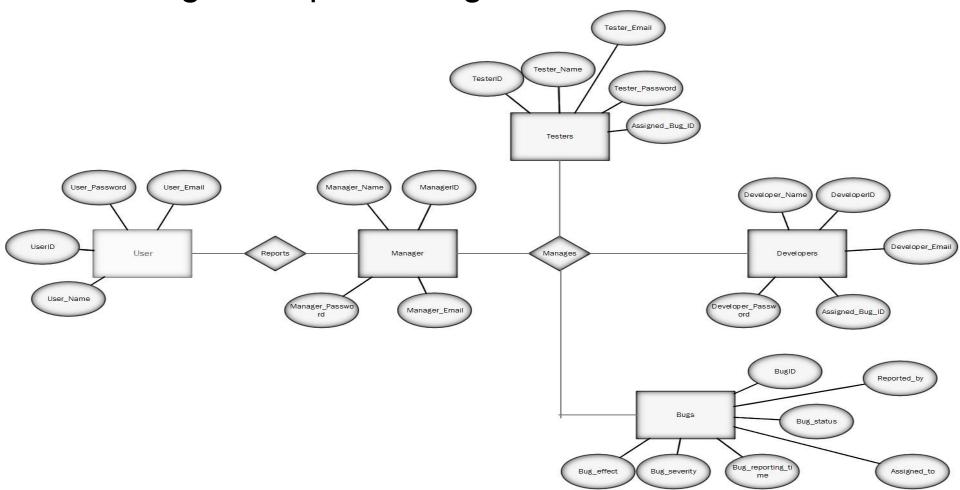
- Most of the bugs encountered arise from mistakes and errors made by people in either the program's source code or its design and few are caused by compilers producing incorrect code.

Introduction to a Bug Tracking System

- It is a software application that is designed to help quality assurance and programmers keep track of reported software bugs in their work.
- A major component of this system is a database that records the information about the various users (customers, developers and testers) and the bugs that have been recorded.
- Here, in this implemented Bug Tracking System, the workflow is a follows :

  The Manager has a collection of bugs reported to them (by the customers) and the Manager in turn assigns the bugs to be solved and tested to a developer and a tester.

E.R. Diagram representing the workflow

Software Requirements Specification (SRS)

- Its a comprehensive description of the intended purpose and environment for software under development.
- It fully describes what the system (software) will do and how it will be expected to perform.
- The components present in the SRS include the following :
  - Product scope and features.
  - (Component) user classes and characteristics.
  - Operating environment and the corresponding Design and Implementation constraints.
  - Functional requirements for both the System and the Users.
  - External interface requirements such as those for the user, Hardware, Software and Communications.
  - Various requirements such as those of Performance, Safety and Security.
  - Software Quality Attributes such as Adaptability, Availability, Reliability and Usability.

Functional Requirements for the System

- The system shall provide a web-based Graphical User Interface (GUI).
- The system shall be able to authenticate the users.
- The system shall ensure the integrity of the stored data.
- The system shall have a facility to add new, incoming bugs.
- The system shall have a facility for issuing bugs to the respective developers and testers by the concerned manager.
- The system shall add a timestamp as soon as the bug submission and assignment (to the respective testers and developers) are carried out.
- The system shall have a facility for displaying all the information associated with the bugs available.
- The system shall have built-in notification and messaging features.
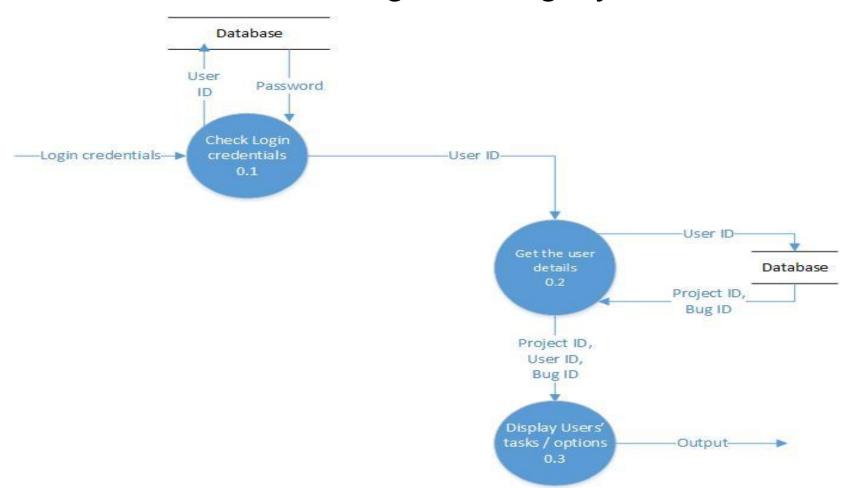- The system shall have a facility for resolving (deleting) the bugs that have been taken care of.

Functional Requirements for the Users

- All classes of users (Managers, Developers and Testers) shall be able to login to the system with their respective valid credentials.
- New Developers and Testers should be able to register into the system and the Manager should be able to confirm their accounts.
- The Manager shall have full administrative rights over the system.
- The Manager shall be able to add a bug to the system.
- The Manager shall be able to create, modify and delete specific fields associated with a particular bug.
- The Manager shall be able to view the details about all the bugs.
- The Manager shall be able to allot a bug to certain Developers and Testers.
- The Manager shall be able to delete the bugs that have been resolved.
- The Manager shall be able to send messages to Developers and Testers.
- The users (Developers and Testers) shall be able to see the bugs issued to them.
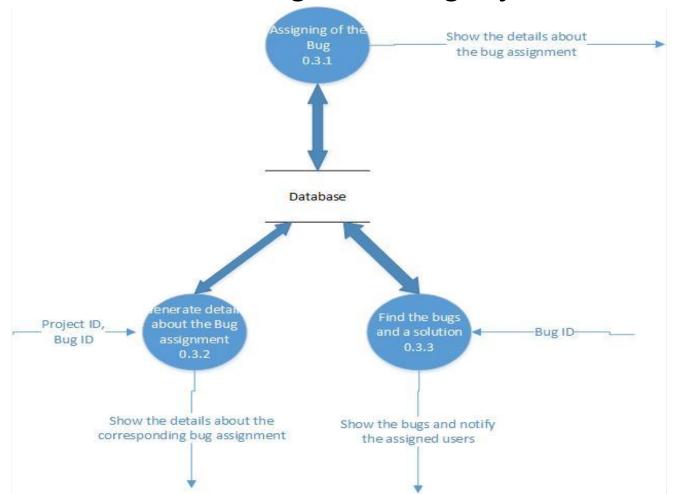- The users shall be able to view the messages sent by the Manager.
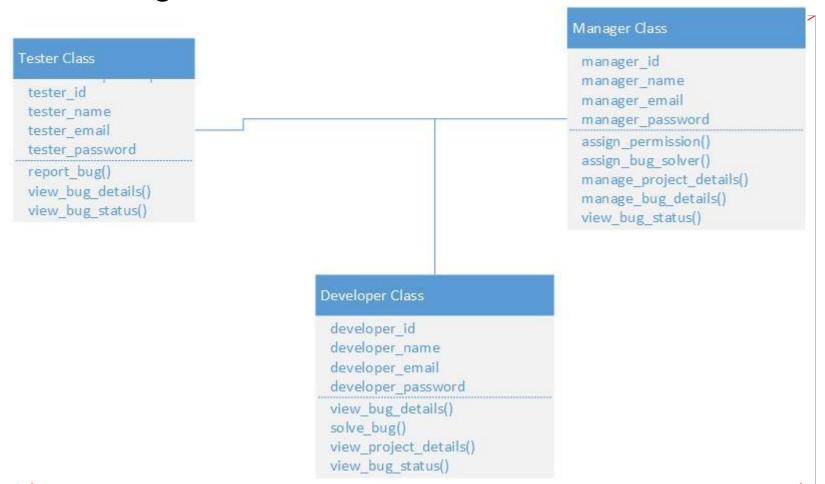
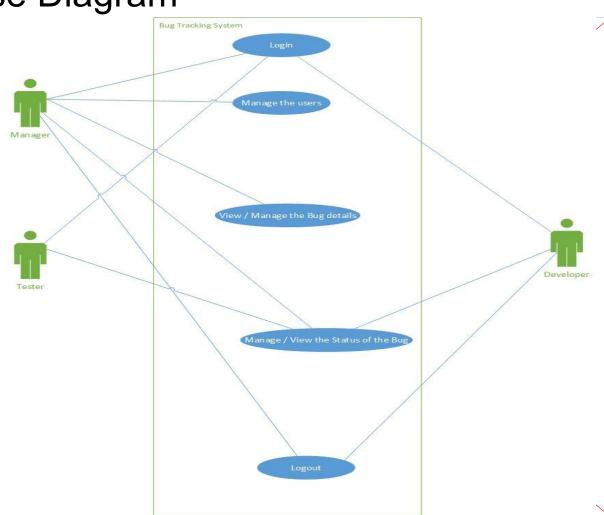# Level-0 DFD

Level-1 DFD for the Bug Tracking System

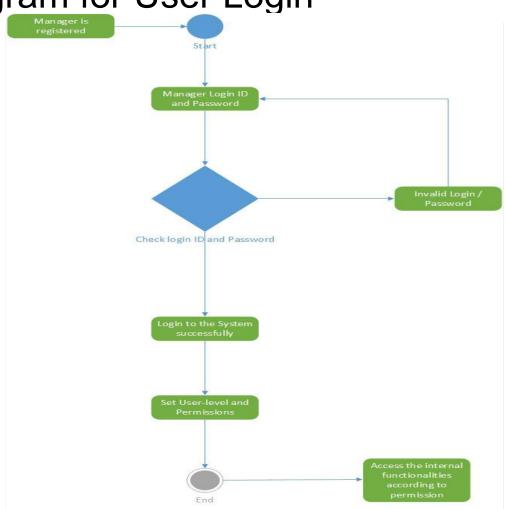# Level-2 DFD for the Bug Tracking System

Class Diagram

Tester Class

tester_id
tester_name
tester_email
tester_password

report_bug()
view_bug_details()
view_bug_status()

Manager Class

manager_id
manager_name
manager_email
manager_password

assign_permission()
assign_bug_solver()
manage_project_details()
manage_bug_details()
view_bug_status()

Developer Class

developer_id
developer_name
developer_email
developer_password

view_bug_details()
solve_bug()
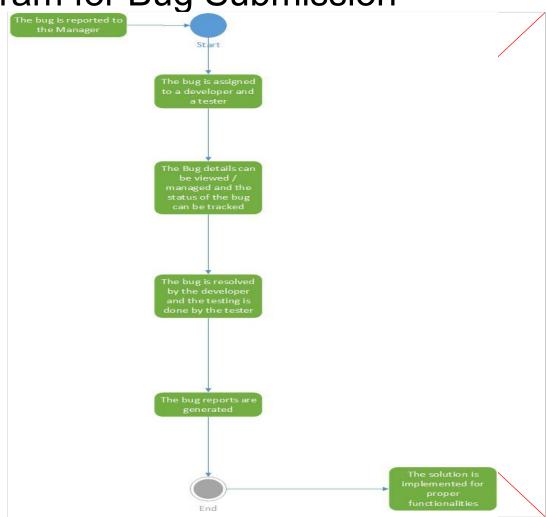view_project_details()
view_bug_status()

Use-Case Diagram

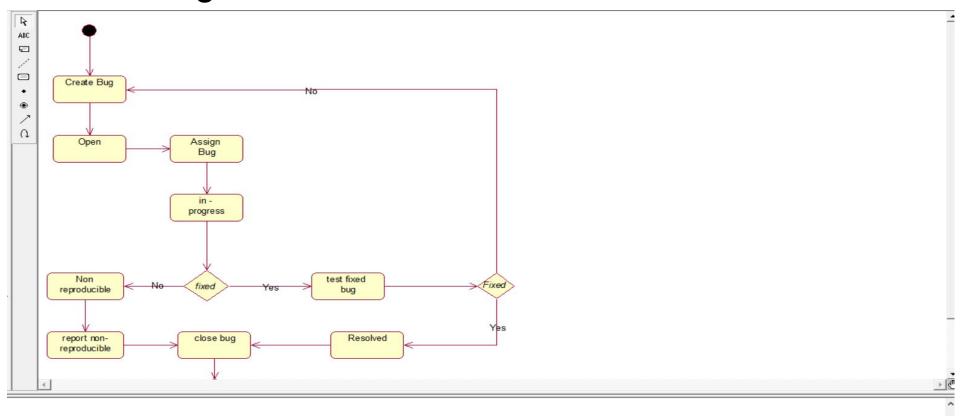# Activity Diagram for User Login
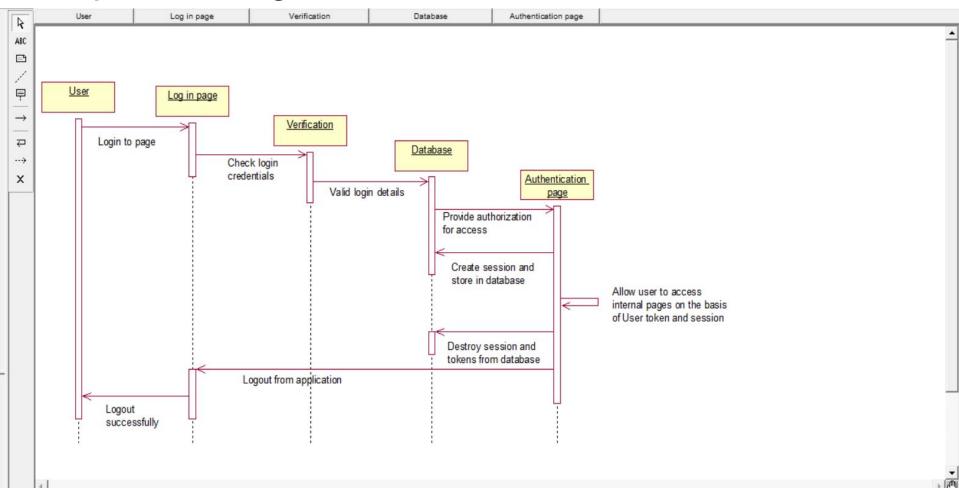
Activity Diagram for Bug Submission
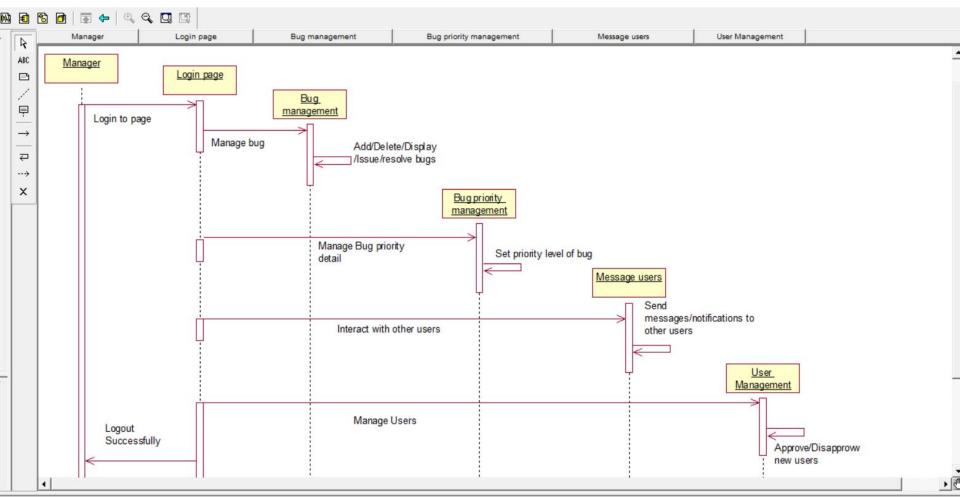
State Diagram
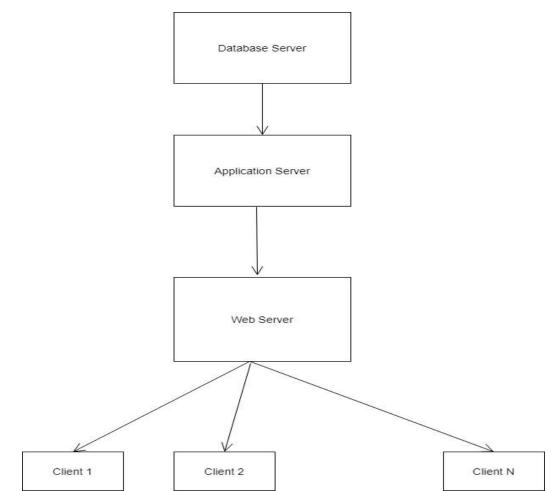
Sequence Diagram - 1

User | Log in page | Verification | Database | Authentication page

Login to page

Check login credentials

Valid login details

Provide authorization for access

Create session and store in database

Allow user to access internal pages on the basis of User token and session

Destroy session and tokens from database

Logout from application

Logout successfully
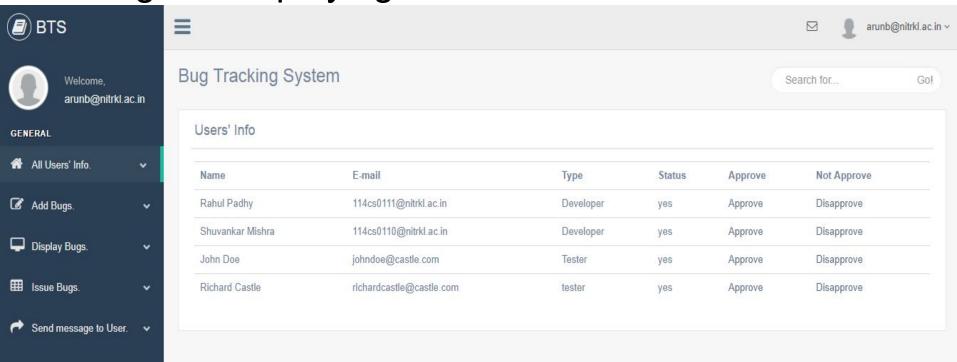
Sequence Diagram - 2

Deployment Diagram

Manager Registration Page

Manager Login Page

Bug Tracking System

Manager Login Form

email

password

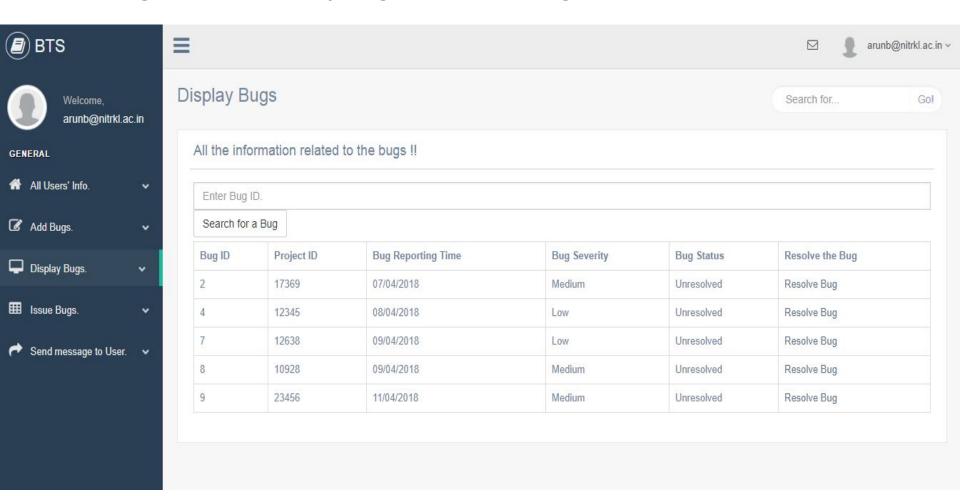Login   Lost your password?

New to site? Create Account

Manager - Displaying information about the users
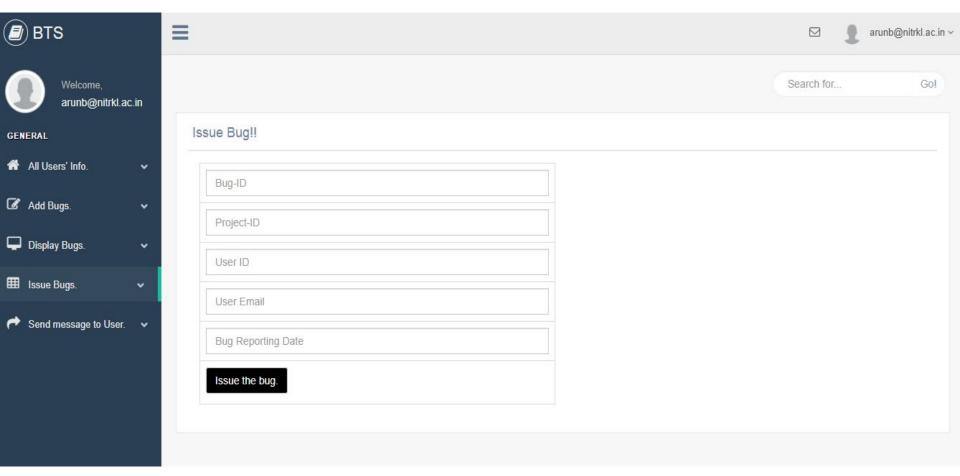
Manager - Adding a Bug into the system
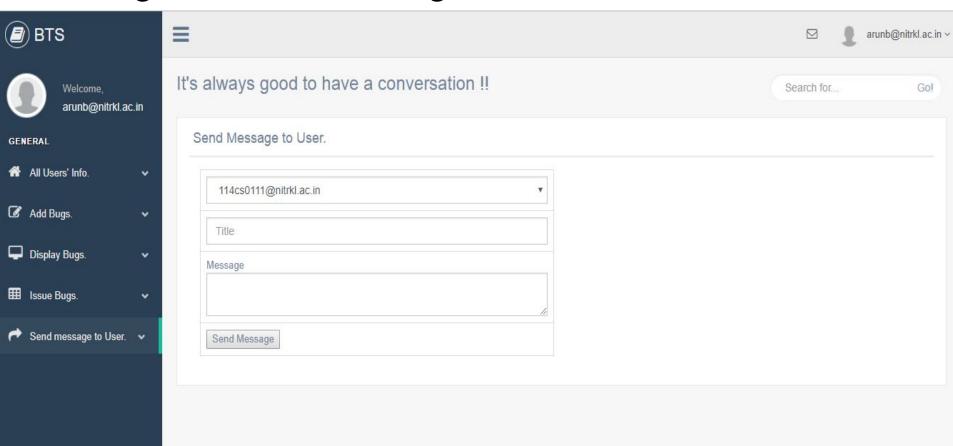
Manager - Displaying all the bugs

BTS

arunb@nitrkl.ac.in ⌄

Welcome,
arunb@nitrkl.ac.in

GENERAL

🏠 All Users' Info. ⌄

📝 Add Bugs. ⌄

🖥 Display Bugs. ⌄

⊞ Issue Bugs. ⌄

➡ Send message to User. ⌄

Display Bugs

Search for...   Go!

All the information related to the bugs !!

Enter Bug ID.

Search for a Bug

Bug ID	Project ID	Bug Reporting Time	Bug Severity	Bug Status	Resolve the Bug
2	17369	07/04/2018	Medium	Unresolved	Resolve Bug
4	12345	08/04/2018	Low	Unresolved	Resolve Bug
7	12638	09/04/2018	Low	Unresolved	Resolve Bug
8	10928	09/04/2018	Medium	Unresolved	Resolve Bug
9	23456	11/04/2018	Medium	Unresolved	Resolve Bug

Manager - Issuing a bug

Manager - Send Message to User

User - Registration

User - Login

User - Issued Bugs

User - Message from Manager

THANK YOU !!