ResolveIT: Streamlined Technology Support System

IDS 517
Group 5

Team Member Roles

Name	Role
Tanishq Padwal	Backend Developer
Kamal Teckchandani	Frontend Developer
Ashna Sheregar	Backend Developer
Saatvik Shukla	Quality Assurance & documentation
Nonitha Vampati	Frontend Developer
Omkar Nehete	Quality Assurance & documentation
Akshay Shenoy	Backend Developer

Team meets on Mondays, Wednesdays, and Fridays at 9:00 PM :

- Communication and progress report (M & W)
- Development of Helpdesk System (M,W & F)
- Testing (M & W)
- Brainstorming future features (M,W & F)
- Weekly Integration testing and Compatibility/Bug Reporting(F)
- Code Maintenance (W & F) (Weekends if required)

Team Progress

- Completed requirement gathering and setup development environment.
- Finalizing design decisions collaboratively.
- Draft Project Management Report, Team Policies and High level SW diagrams being worked upon.
- Team Role assignment.

Project Schedule

Week 1	Week 2	Week 3	Week 4
Kickoff meeting, finalize project group policy and management draft.	Design and implement the database schema for core entities.	Create test cases for User registration, login, and service request handling.	Deployment
Set up the development environment and project repository.	Develop API endpoints for service request submission and viewing.	Conduct functional and UAT testing; gather feedback.	
Implement User registration and login functionality.	Begin front-end development for the user dashboard.	Address feedback, perform any needed reiterations, and finalize documentation.	

Project Scheduling: List of Task

- Week 1 – Project Setup and Preliminary Design
  - Tool Selection and Setup:
    - Install Java FX and any necessary libraries for GUI development.
    - Set up version control with Git and repository on GitHub.
  - Stack/Queue Model Determination:
    - Decide whether to use a stack or queue model based on business logic needs.
    - Implement the chosen Abstract Data Type (ADT) in a basic Java class.

- Week 2 – Interface Development and Core Logic
  - Java FX GUI Prototyping:
    - Sketch out initial GUI layout using Java FX Scene Builder.
    - Develop basic navigation and interface elements.
  - Core Functionality Development:
    - Implement the main system operations using the stack/queue model.
    - Develop the business logic that interacts with the GUI components.

Project Scheduling: List of Task

- Week 3 – Feature Integration and Initial Testing
  - Feature Completion:
    - Finalize all primary features, including user registration, login, and service request handling.
    - Ensure integration of stack/queue operations within the application flow.
  - Testing and Debugging:
    - Conduct unit and functional testing of core features.
    - Begin iterative testing and debugging of Java FX GUI elements.

- Week 4 – Refinement and Pre-Deployment
  - System Refinement:
    - Refine the GUI based on test feedback, focusing on usability.
    - Optimize the stack/queue implementation for performance.
  - Preparation for Deployment:
    - Create comprehensive user documentation and finalize technical specifications.
    - Conduct a deployment readiness review with the project team.

SDLC Stages: Business Area

The selected business area for the implementation of the Online Helpdesk System is the **Information Technology (IT) Support Services sector**. This sphere is integral to the operational backbone of any modern enterprise, acting as the first line of defense against technical disruptions that can impede business processes. It encompasses a broad range of services including but not limited to hardware maintenance, software troubleshooting, network management, and cybersecurity defenses.

Technology underpins virtually every aspect of business operations, the role of IT Support Services extends beyond mere maintenance. It is about enabling and empowering the workforce through technology, ensuring that all systems function seamlessly, and providing swift resolutions to technical issues that could otherwise lead to productivity loss.

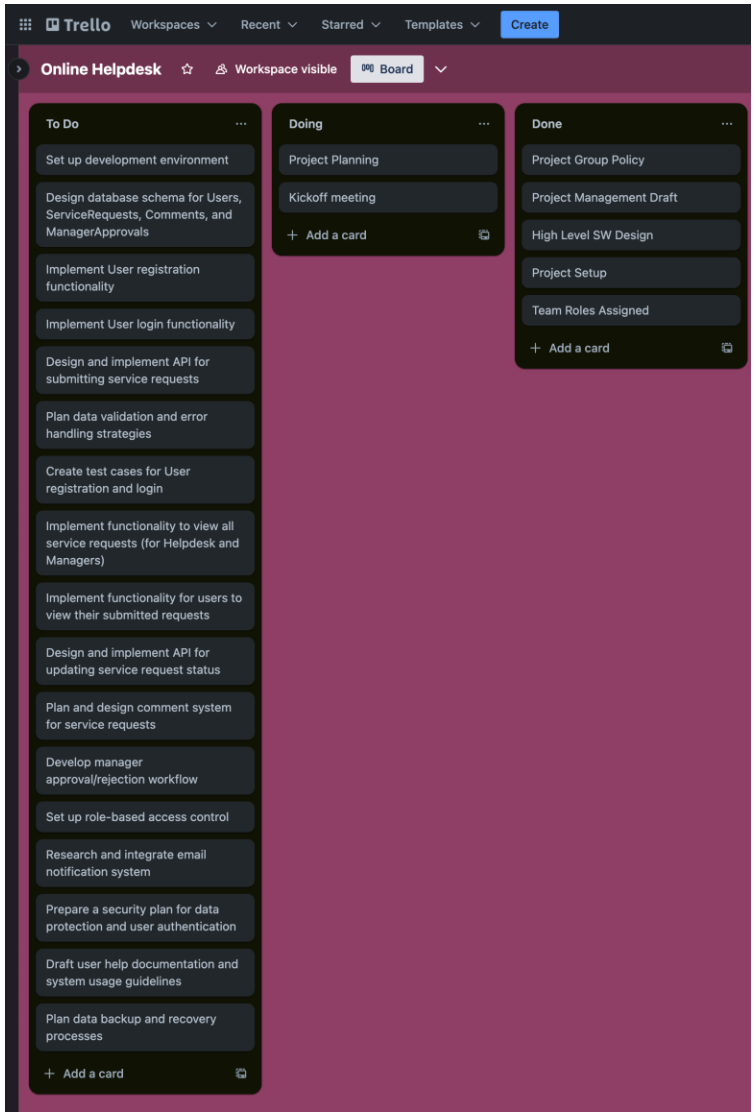
SDLC Stages: Business Operation

Business Operation: IT Support and Resolution Management

The Online Helpdesk System will serve as the cornerstone for managing IT support activities within the organization. The system will provide a centralized platform for employees to report IT issues, track the status of their problems, and receive timely assistance from the IT support team. It will also be an essential tool for the IT department to manage support tickets, prioritize issues based on severity, and allocate resources effectively to resolve problems promptly.

- Ticket Submission: Employees can report issues with a detailed description and any relevant information that can assist in the troubleshooting process.
- Ticket Tracking: Users can view the status of their tickets at any time, from submission to resolution.
- Resource Allocation: IT support staff can assign tickets to themselves or other team members, ensuring that the right skills are applied to each issue.
- Resolution Workflow: A systematic approach to resolving tickets, including steps for diagnosis, action, follow-up, and closure.
- Reporting and Analytics: The system will provide reports on ticket volume, resolution times, and support staff performance to inform management decisions and identify areas for operational improvement.

Trello Board



Problem Analysis

- Secure Authentication System:
  - Problem: User authentication challenges.
  - Feature: Robust login with encryption and multi-factor authentication options.

- Real-Time Service Request Tracking:
  - Problem: Difficulty in tracking request status and updates.
  - Feature: Live status updates and a timeline view for each service request.

- Automated Workload Balancing:
  - Problem: Inefficient distribution of workload among helpdesk staff.
  - Feature: An automated system that assigns requests based on staff availability and expertise.

- Integrated Communication Platform:
  - Problem: Communication gaps between users and helpdesk staff.
  - Feature: In-built messaging and notification system for streamlined communication.

Problem Analysis

- Performance Optimization:
  - Problem: System slowdowns with high request volumes.
  - Feature: Scalable architecture and efficient database management for high performance.
- Intuitive User Interface:
  - Problem: Complex systems that frustrate or confuse users.
  - Feature: A clean, simple interface designed for ease of use.
- Data Protection and Encryption:
  - Problem: Ensuring data integrity and security.
  - Feature: State-of-the-art encryption and compliance with data protection laws.
- Regulatory Compliance Management:
  - Problem: Adhering to various industry regulations.
  - Feature: Regular updates to maintain compliance with evolving standards.

Core Features of Our Online Helpdesk System

- **Secure User Access:**

Register and log in securely for a personalized and private experience.

- **Service Request Management:**

Submission: Log new service requests with ease.
Viewing: Track the status of requests in real-time.
Assignment: Helpdesk staff can efficiently manage workload by assigning requests.

- **Communication and Tracking:**

Updates & Comments: Keep track of progress and communicate effectively within each request.
Dashboard: Get an overview of request statuses at a glance for users and staff.

- **Automated Notifications:**

Receive email alerts for new actions and updates on your service requests.

HelpDesk Features

UML Diagram

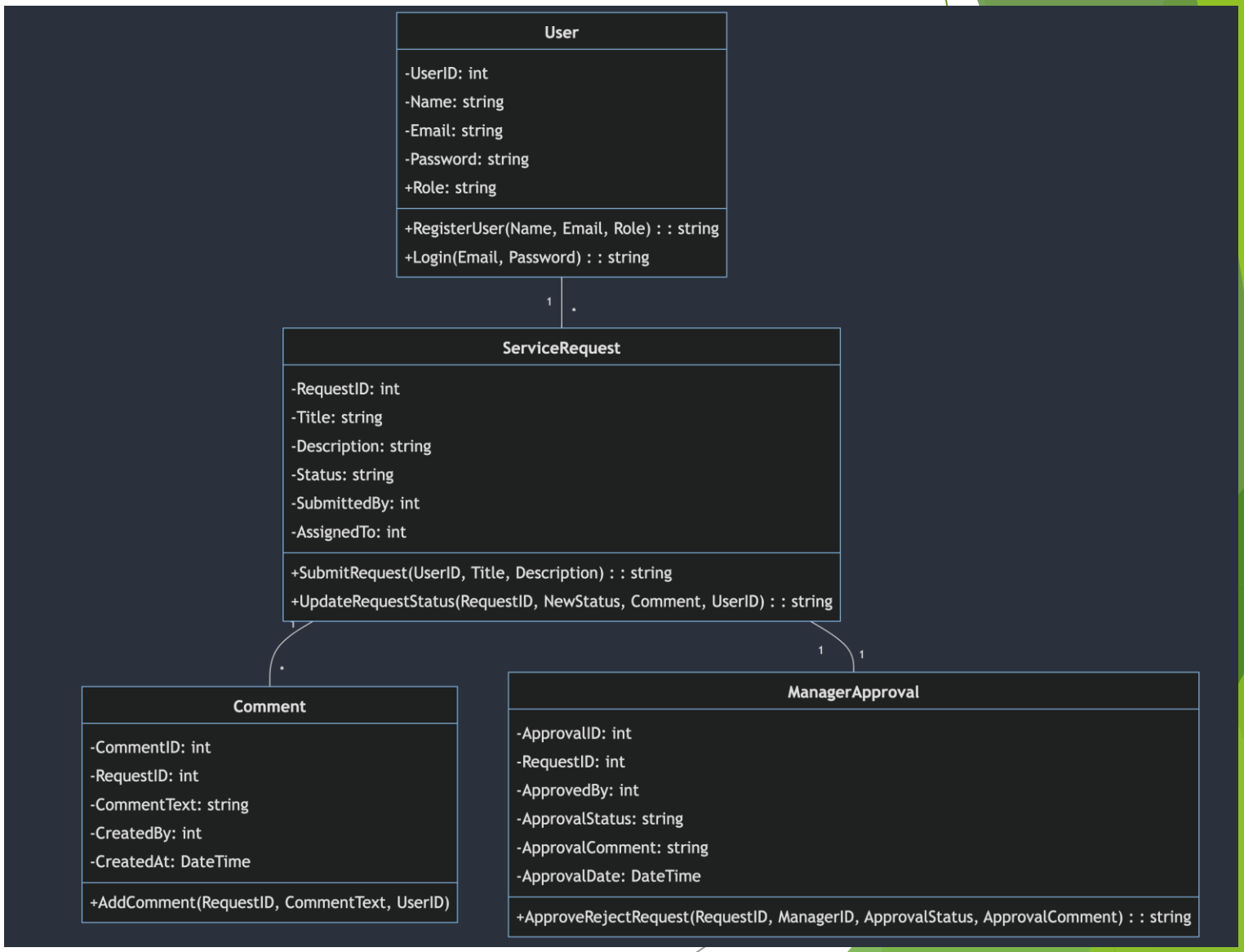
- **User Class:** Represents system users and contains personal identification and authentication information. The class provides functions for user registration and login, essential for secure access to the system.

- **ServiceRequest Class:** Central to the system, this class captures the details of service requests submitted by users. It tracks the progress of each request from submission to resolution and includes functions for submitting new requests and updating their status, which can include comments for additional context.

- **Comment Class:** Attached to the ServiceRequest class, this allows for dialogue and updates on individual service requests through user and staff comments, facilitating clearer communication and record-keeping within the system.

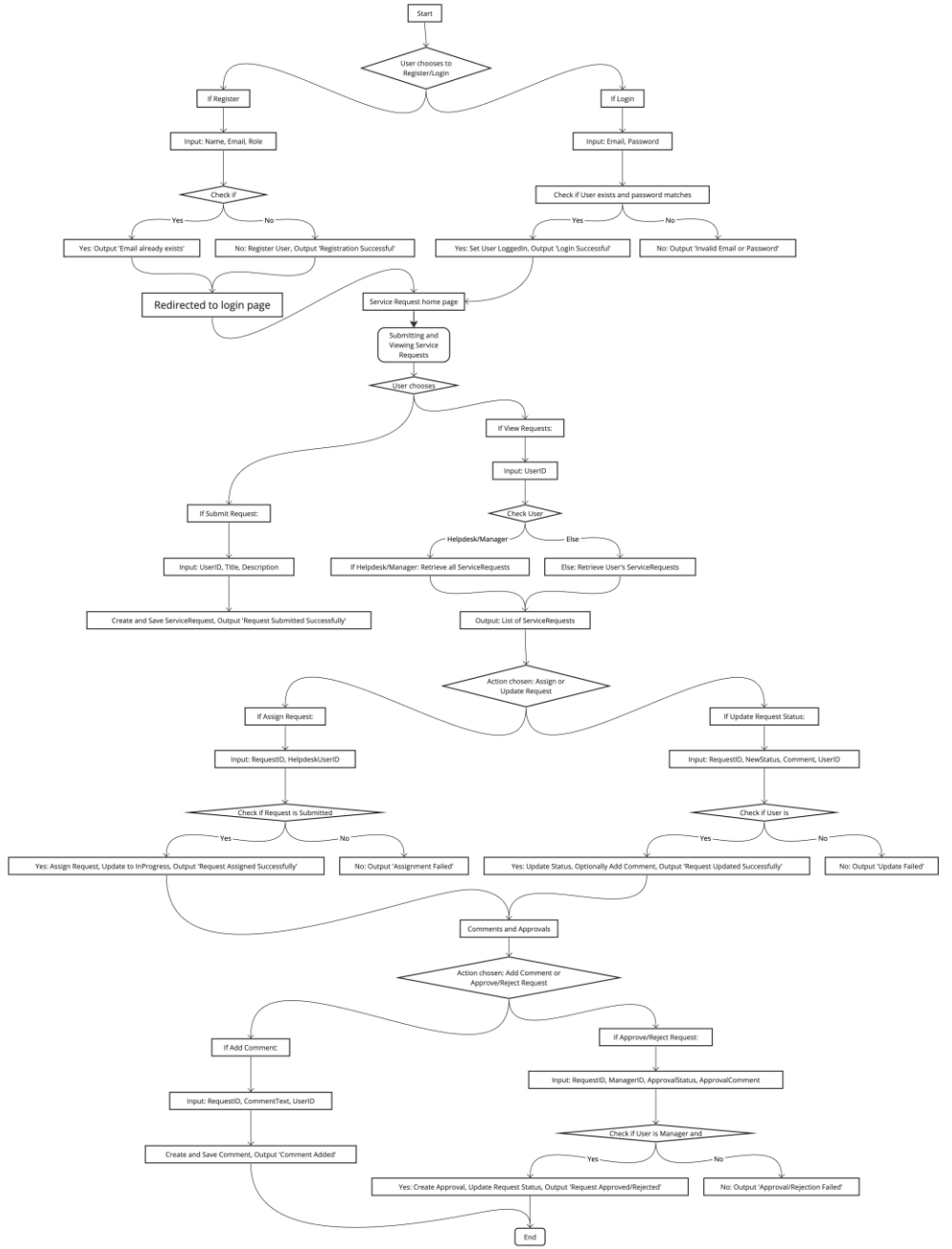
- **ManagerApproval Class:** A specialized class for managerial actions, offering functions for approval or rejection of service requests. It records the outcome of managerial decisions and any associated comments, formalizing the approval process within the system's workflow.

UML Diagram


User
-UserID: int
-Name: string
-Email: string
-Password: string
+Role: string
+RegisterUser(Name, Email, Role) : : string
+Login(Email, Password) : : string
1
*
ServiceRequest
-RequestID: int
-Title: string
-Description: string
-Status: string
-SubmittedBy: int
-AssignedTo: int
+SubmitRequest(UserID, Title, Description) : : string
+UpdateRequestStatus(RequestID, NewStatus, Comment, UserID) : : string
1
*
1
1
Comment
-CommentID: int
-RequestID: int
-CommentText: string
-CreatedBy: int
-CreatedAt: DateTime
+AddComment(RequestID, CommentText, UserID)
ManagerApproval
-ApprovalID: int
-RequestID: int
-ApprovedBy: int
-ApprovalStatus: string
-ApprovalComment: string
-ApprovalDate: DateTime
+ApproveRejectRequest(RequestID, ManagerID, ApprovalStatus, ApprovalComment) : : string

Process Flowchart

- **Start:** User initiates the process.
- **Registration/Login:** User can register with a unique email or log in with existing credentials.
- **Homepage Navigation:** Logged-in users directed to the service request homepage.
- **Request Submission:** Users submit new service requests with details.
- **Request Viewing:** Users view the status of submitted requests; staff and managers access a comprehensive list.
- **Request Management:** Helpdesk staff assign and update requests, adding comments as needed.
- **Approval Workflow:** Managers approve or reject requests, updating the system status.
- **End:** Completion of the service request lifecycle.



Testing and Verification

- **Rigorous Quality Assurance: QA Team** ensures that every component of the Helpdesk system satisfies strict quality standards by implementing an extensive testing plan.
- **Functional Testing: QA Team** conducts functional testing to ensure that all features and functionalities of the Helpdesk system operate as intended.
- **UAT Testing: QA Team** involves end users in the testing phase through UAT to confirm the functionality and usability of the system.
- **Performance Testing: QA Team** conducts performance testing to ensure that the system operates at its fastest and most responsive speed.
- **Continuous Improvement: PM & QA Team** will continuously monitor the Helpdesk system, gather input, and implement improvements to accommodate changing company needs and further send it to the **developers** who will implement the changes which will be approved by the **Product Owners.**

Thank You