**Project Title:**  
StudySphere: Where Knowledge Meets Collaboration.

**Which real-world problem shall be solved by this FYP?**  
In today’s academic landscape, students struggle to prepare effectively for exams due to fragmented study resources, lack of personalized learning tools, and limited opportunities for real-time collaboration. Traditional platforms do not integrate dynamic content creation with advanced AI capabilities, leaving learners with static, isolated materials. StudySphere addresses these challenges by unifying community-driven learning with AI-powered functionalities, enabling efficient note sharing, intelligent content generation, and interactive peer collaboration that collectively enhance academic outcomes.

**Detail of Project Members:**

1. Danyal Shah (SP22-BCS-038)
2. Talal Hassan (SP22-BCS-029)  
   **Supervised By:**  
   Mam Maha Rasheed

**Project Streams:**  
☒ Mobile Apps FYPs

**Project Description**  
(a) **What is the overall working/summary of this FYP?**  
StudySphere is an Android-based mobile application that merges advanced AI techniques with a collaborative learning ecosystem. The platform allows users to upload, share, and organize study materials while engaging in discussion forums and real-time chats. Its AI modules — designed for text summarization, quiz generation, and context-aware Q&A — dynamically convert user content into effective study aids. Additionally, personalized study groups, gamified learning features, and comprehensive analytics foster an interactive, data-driven study environment, ultimately streamlining exam preparation and improving performance.

**(b) Name and detail of each module in your FYP**

**Modules Developed by Talal Hassan (SP22-BCS-029):**

1. **AccessGuard (User Profile & Authentication Module):**
   * Ensures secure access to StudySphere by managing user identities through robust account creation, login/logout, and profile management using Firebase Authentication.
   * Incorporates privacy controls that allow users to determine which content may be used for AI processing.
2. **StudyConnect (Discussion Threads & Group Chat Module):**
   * Provides a dynamic forum-style platform for users to pose questions and share ideas in structured discussions.
   * Facilitates real-time group chats with file-sharing capabilities and supports the creation of both public and private study groups.
3. **KnowledgeVault (Notes Sharing Module):**
   * Enables users to upload, share, and download study materials in various formats such as PDFs and images.
   * Implements tagging and categorization for efficient search and quick access to specific study notes.
4. **InsightTrack (Study Insights & Progress Tracker Module):**
   * Monitors and logs user activities (e.g., time spent on summaries and quizzes) and generates visual progress reports with charts.
   * Provides data-driven insights to help users identify their strengths and areas for improvement.
5. **AdminSphere (User Management Module):**
   * Empowers administrators to view and manage user data, monitor activity logs, and control permissions such as role assignments and account status.
   * Facilitates actions like suspending or deleting accounts, thereby ensuring a secure and well-moderated platform.

**Modules Developed by Danyal Shah (SP22-BCS-038):**

1. **SmartDigest (AI-Powered Summarization Module):**
   * Processes uploaded textual content using advanced NLP models to generate concise and context-aware summaries.
   * Offers customization options, allowing users to select between brief, medium, or detailed summaries based on their needs.
2. **AutoQuiz (Quiz Generator Module):**
   * Automatically analyses study materials to generate diverse quiz formats, including multiple-choice, True/False, and fill-in-the-blank questions.
   * Ensures contextual relevance and adjusts the difficulty level based on user performance metrics.
3. **LearnQuest (Gamified Learning Module):**
   * Incentivizes learning by rewarding users with points, badges for engaging in activities such as sharing notes, creating quizzes, and participating in discussions.
   * Actively promotes consistent participation and fosters a motivational environment through gamification.
4. **AskEdu (Chatbot Module):**
   * Allows users to interactively ask questions based on uploaded text or images, leveraging a Retrieval-Augmented Generation (RAG) framework for accurate, context-aware responses.
   * Supports follow-up inquiries and clarifications to enhance learning.
5. **UserEcho (Feedback Module):**
   * Provides a mechanism for users to rate and review platform features, content, and overall experience through surveys, polls, and a suggestion box.
   * Enables administrators to review feedback and implement improvements, ensuring continuous refinement of the platform.

**(c) Were similar FYPs already developed on the same topic in your department?**  
☒ Yes

**(d-1) Copy name(s) of latest one or two similar FYPs from RMS student console and paste below:**  
Educational Hub, AI-Based Intelligent Learning System for CS  
Above mentioned projects focus on providing educational content and management, whereas our project integrates community-driven learning with AI-powered study tools, offering features such as notes sharing, collaborative discussions, quiz generation, and progress tracking in a mobile app.

**(d-2) Mention below the three (3) new, but main, functionalities you are adding to this FYP:**

1. Integration of AI-powered tools (SmartDigest, AutoQuiz, AskEdu) with collaborative features (KnowledgeVault, StudyConnect, AdminSphere).
2. A collaborative platform enabling users to share notes, engage in real-time discussions, and join personalized study groups, fostering an interactive learning environment.
3. A gamified learning experience (LearnQuest) that promotes engagement and productivity while providing actionable study insights.

**Development Environment:**  
• **Tools:**

* **Flutter Framework (Dart Language)** for mobile app development.
* **Firebase Firestore** for real-time database and cloud syncing.
* **Python** for backend development and AI model processing.  
  • **DBMS:** Firebase Firestore (Cloud)  
  • **Platform:** Android