Project 1: GenAI_Finance_GPT

	Content
Project Title	GenAI_Finance_GPT
Category	GenAI
Problem Statement	The world of finance is complex and constantly changing. Making sense of financial data can be a daunting task, even for seasoned professionals. This mobile app classifies finance documents,provide answers to the finance related questions,summarize and masking the important financial information in the financial documents using GenAI techniques.The project will explore federated learning in model training which offers privacy, security, regulatory, and economic benefits.
Tech Stack	Flutter/Firebase, GenAI, Flutter Hooks, AWS
Max Groups	4

Project 2: TRAVIS- TRansformer-based Assistant for VIsually impaired Service agents

	Content
Project Title	TRAVIS- TRansformer-based Assistant for VIsually impaired Service agents
Category	GenAI
Problem Statement	Transformer Based Help Desk for Visually Impaired Service Agents with voice assistance integrated project aims to design and implement a transformer based AI system developed from scratch that enables visually impaired bank representatives to handle customer queries efficiently. The system will process input queries, classify them into standardized categories, translate responses into local languages, and convert them into speech for the representative to communicate. It focuses on empowering visually impaired bank agent/representative to provide accurate, timely responses using advanced transformer-based models.
Tech Stack	MERN,GenAI , TTS
Max Groups	4

Project 3: TALQS- Transformer-based Architecture for Legal Question Answering and Summar

	Content
Project Title	TALQS- Transformer-based Architecture for Legal Question Answering and Summarization.
Category	GenAI
Problem Statement	The legal system generates extensive and complex judgments, making it challenging for professionals and the general public to extract essential information efficiently. This project aims to design and implement Transformer-based models to address two critical objectives: summarizing legal judgments into concise and coherent summaries, and answering specific legal queries accurately based on the full text of judgments. With a dataset of judgments available in PDF format, pre-trained models like T5 and BERT optionally will be utilized to prepare annotated datasets for training.Transformer models will be developed from scratch, with randomly selected and diverse cases used to train each model independently. The summarization model will focus on providing overviews, while the question-answering model will extract precise answers from the full judgment text. Both models will be rigorously tested to evaluate their effectiveness and generalization capabilities, ensuring they meet the demands of real-world legal applications.
Tech Stack	MERN,GenAI , TTS
Max Groups	4

Project 4: AVATARLAB
Building smart & realistic AI avatars

	Content
Project Title	AVATARLAB Building smart & realistic AI avatars
Category	GenAI
Problem Statement	=€ Imagine this: You type a script, and within seconds, a lifelike digital avatar speaks it back with natural expressions, lip-sync, and voice modulation. Sounds futuristic? Welcome to Avatar Lab, where you bring AI-powered avatars to life! In this project, students will develop a cutting-edge animation pipeline that converts text into realistic talking head videos. By integrating DiffTalk for high-quality facial animation and SMALL-E for efficient speech synthesis, you ll craft an AI system that generates avatars capable of expressing emotions, syncing lip movements, and speaking just like a real human! With access to an RTX 4090 GPU (provided by college), your team will explore the power of deep learning, optimize inference pipelines, and push the boundaries of AI-driven animation. What You ll Learn: Deep Learning for Animation Understand how AI generates realistic facial movements. Speech Synthesis & Lip Sync Implement models that synchronize voice with visual expression. Optimizing AI Models for Performance Leverage GPU acceleration to make real-time avatar generation possible. Building an End-to-End AI System Gain hands-on experience in integrating multiple deep-learning models into a seamless workflow. Innovation in Digital Media Explore real-world applications in virtual assistants, gaming, education, and beyond! =9 Who should join? If you love AI, animation, and innovation, this project is your playground! Get ready to turn text into talking avatars and shape the future of AI-powered storytelling. <¬(

	Content
Tech Stack	MERN, Models(DiffTalk (talking head animation)Small-E (Speech cloning, TTS))
Max Groups	4

Project 5: CodeGenie AI companion for effortless code

	Content
Project Title	CodeGenie AI companion for effortless code creation
Category	GenAI
Problem Statement	=€ Wish you could write code effortlessly? Meet CodeGenie! Just type a prompt, and like magic, your VS Code extension will generate intelligent, context-aware code snippets in seconds! In this project, you ll develop a smart coding assistant powered by DeepSeek Coder, a cutting-edge AI model designed for code generation. Your extension will help developers by providing real-time

	Content
	code suggestions, autocompletions, and intelligent snippets, making coding faster, smarter, and more efficient. To make your AI-powered assistant fast and accurate, you ll get access to an RTX 4090 GPU (provided by college) for inference, letting you experience real-world AI deployment and optimization. What You ll Learn: AI-Powered Code Generation Implement and fine-tune a state-of-the-art coding LLM. Plugin Development Learn how to build, test, and deploy a fully functional VS Code extension. Optimizing AI for Performance Utilize GPU acceleration to enhance inference speed and efficiency. Enhancing Developer Productivity Explore how AI can automate coding tasks and improve workflow. =9 Who should join? If you re passionate about AI, coding, and automation, this project is your gateway to building the future of smart development tools! Get ready to create the ultimate coding companion and make developers lives easier. =€=»
Tech Stack	VS code extension implementation, Model: DeepSeek-Coder (AI code generator)
Max Groups	4

Project 6: Implementing a Multi-Class Table Transformation Framework using Large Language

	Content
Project Title	Implementing a Multi-Class Table Transformation Framework using Large Language Models for Data Integration
Category	GenAI
Problem Statement	Project Goal: To design and implement a system, TabulaX, that can automatically transform tabular data from diverse sources into consistent formats, leveraging the capabilities of Large Language Models (LLMs). This system should classify input tables into different transformation classes and apply appropriate methods for each class. The goal is to provide an interpretable, accurate, and efficient solution for data integration and transformation. Project Objectives: " Classification Module: Develop a classifier using an LLM to categorize input tables into four transformation classes: string-based, numerical, algorithmic, and general. The classifier should be able to distinguish between different types of data and apply appropriate transformation methods. o String-based transformations involve manipulations like substring extraction, concatenation, and case conversions. o Numerical transformations deal with mathematical operations, such as linear, polynomial, exponential, and rational functions. o Algorithmic transformations include conversions that follow specific algorithms, like date conversions or character encoding changes. o General transformations involve mappings that require external knowledge or do not fit the other three categories, like linking company names to CEO's. " Transformation Modules: Implement separate modules for each transformation class that generate human-interpretable transformation functions. o For numerical transformations, use curve fitting algorithms to find the best-fit function and generate the corresponding code in Python. o For string transformations, prompt an LLM to generate Python functions that perform the required string manipulations. o For algorithmic transformations, use a Chain-of-Thought approach to first identify the relationship between source and target data and then generate the corresponding Python code. o For general transformations, use a Chain-of-Thought approach to detect column types and then use LLMs to generate a lookup function to predict the target values o Python code is generated during couple of Transformations that needs to be executed and the output used for implementing the Transformation. Consider performing this task using Agent Framework. " Data Handling: Develop a system for serializing input tables into text sequences that LLMs can process. " Evaluation: Evaluate the system s performance on real-world datasets " Expected Outcomes: o A functional software system capable of performing multi-class table transformations. o A clear understanding of how LLMs can be leveraged for data transformation tasks. o Understanding the limitations and challenges of using LLMs for table transformations. " Additional Considerations: o Interpretability: Ensure that all generated transformation functions are human-interpretable, either as numerical formulas or programming code. o Flexibility: Make the system flexible enough to integrate with different LLMs. o Error Handling: Implement robust error handling to manage missing values, unexpected input formats, and other possible errors. o Downstream Tasks: Demonstrate how the generated transformation functions can facilitate downstream tasks, such as heterogeneous table joins. Three Step Challenge: i. Connect the system with a Database (say MySQL) and perform the Transformations ii. Take another database (say MongoDB) to perform the Transformations iii. Use Agentic framework for implementing steps (i) and (ii).
Tech Stack	Gen AI/LLM, MERN, MySQL, MongoDB
Max Groups	4

Project 7: Adaptive Learning Path

	Content
Project Title	Adaptive Learning Path
Category	GenAI
Problem Statement	In today's rapidly evolving educational landscape, personalized learning approaches are the way to go, especially for children with learning difficulties. Traditional educational methods often fall short in addressing the diverse needs of such learners, leading to disengagement and limited progress. With advancements in artificial intelligence and deep learning, particularly in transformer-based models, there is an opportunity to create intelligent systems that can better understand and respond to a child's unique emotional and behavioral cues. ALP (Adaptive Learning Path) is an adaptive educational platform that uses transformer-based models to analyze facial expressions and gameplay behaviors of children with learning difficulties. This system will dynamically adapt the learning path of the child following challenges and feedback based on the detected emotional states promoting sustained engagement and improved learning outcomes. While the system adjusts the learning path in real-time, it will always prioritize and adhere to the therapist s recommended path, ensuring that the adaptive process remains aligned with professional therapeutic goals.
Tech Stack	MERN , Transformers
Max Groups	4

Project 8: JoyVerse

	Content
Project Title	JoyVerse
Category	GenAI
Problem Statement	In the current world, leveraging technology to create personalized and adaptive learning experiences is key to supporting diverse learning needs. Dyslexic children, in particular, benefit greatly from tailored educational interventions that keep them engaged and motivated. JoyVerse is a transformer-powered system, which can analyze video feeds of dyslexic children playing educational games to detect their emotional states. This will require building state-of-the-art transformers for facial expression recognition and temporal sentiment modeling, enabling real-time optimization of game design elements such as difficulty levels, themes, and reward systems, ultimately creating a more effective and enjoyable learning environment. All adjustments and optimizations will be made in alignment with the therapist's guidance, ensuring the tool remains within the boundaries of recommended therapeutic approaches
Tech Stack	MERN,Transformers
Max Groups	4

Project 9: SafeStreet - Road Damage Detection and Alert System

	Content
Project Title	SafeStreet - Road Damage Detection and Alert System
Category	GenAI
Problem Statement	SafeStreet includes a dedicated mobile application for maintenance teams, streamlining road damage detection and reporting. On-field personnel can capture images and upload them directly to the system via the app, which syncs with the backend for analysis. The ViT model processes the uploaded image to classify damage, assess severity, and generate a detailed text summary. This summary highlights the type of damage, severity, and repair priority, which is shared with the relevant admin or authority through an automated email. The MERN-based web platform complements the app by offering advanced visualizations, insights, and historical analysis for road authorities.
Tech Stack	Mobile App: React Native ,Web App: React.js, HTML, CSS, JavaScript Backend:Node.js, Express.js Database: MongoDB , Machine Learning Model: Vision Transformer (ViT)
Max Groups	4

Project 10: SceneSolver - A Smart Tool for Crime Scene Investigation

	Content
Project Title	SceneSolver - A Smart Tool for Crime Scene Investigation
Category	GenAI
Problem Statement	SceneSolver is an AI-powered forensic platform that automates crime scene analysis using CLIP and Vision Transformers (ViT). The platform processes images to identify crime types, extract key visual evidence, and generate detailed crime scene summaries. By supporting batch processing, SceneSolver enhances the efficiency of forensic investigations, enabling professionals to analyze large amounts of visual data quickly and accurately.
Tech Stack	MERN, GenAI
Max Groups	4