



CMR ENGINEERING COLLEGE

UGC AUTONOMOUS

(Approved by AICTE - New Delhi. Affiliated to JNTUH and Accredited by NAAC & NBA)

Kandlakoya (V), Medchal (M), Medchal - Malkajgiri (D)-501401



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

II-II CASE STUDIES(A.Y:2022-23)

PYTHON PROGRAMMING

- 1.Instagram - Scalable Social Media Platform
- 2.Spotify - Music Recommendation Engine
- 3.Developing a Python Application for Task Automation in a Business Environment

SOFTWARE ENGINEERING

- 1.Development of an E-commerce Platform (Amazon)
- 2.Netflix's Recommendation System



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II-II CASE STUDIES(A.Y:2023-24)

PYTHON PROGRAMMING

- 1.NASA - Mars Rover Data Analysis
- 2.YouTube - Video Streaming and Content Management
- 3.Creating a Virtual Assistant Using Python and Speech Recognition

SOFTWARE ENGINEERING

1. Google Search Algorithm
2. Agile Development at Spotify



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II-II CASE STUDIES(A.Y:2024-25)

PYTHON PROGRAMMING

- 1.Student Grading System
- 2.Developing a Social Media Sentiment Analysis Tool
- 3.Designing a Python-Based Healthcare Management System

SOFTWARE ENGINEERING

- 1.Facebook's News Feed Algorithm
- 2.Twitter's Real-Time Tweet Processing



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III-II CASE STUDIES(A.Y:2022-23)

MACHINE LEARNING

- 1.Spam Email Detection (Using Classification Models)
- 2.Predicting House Prices (Using Regression and Ensemble Methods)
- 3.Customer Segmentation (Clustering and Unsupervised Learning)

COMPILER DESIGN

- 1.Implementation of Lexical Analyzer for a Simple Programming Language
- 2.Design and Implementation of a Syntax Analyzer (Parser) for a Custom Language
- 3.Designing an Intermediate Code Generation Phase for a Compiler.

WEB TECHNOLOGIES

- 1.Developing a Real-Time Chat Application Using WebSockets
- 2.Building a Responsive E-Commerce Website with React and Node.js
3. Implementing a Progressive Web App (PWA) for an Online Store

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III-II CASE STUDIES(A.Y:2023-24)

MACHINE LEARNING

- 1.Facial Recognition System (Using CNNs and Deep Learning)
- 2.Credit Card Fraud Detection (Using Anomaly Detection and Classification)
- 3.Traffic Sign Recognition (Using CNNs for Image Classification)

COMPILER DESIGN

- 1.Optimization Techniques in Compiler Design: A Case Study of Constant Folding and Propagation
- 2.Building a Code Generator for a Simple Assembly Language
- 3.Error Detection and Recovery in Compilers: A Case Study

WEB TECHNOLOGIES

1. Creating a Web-Based Task Management System Using Angular
2. Building a Multi-User Blogging Platform with Django and PostgreSQL
3. Designing a Web-Based Social Media Platform Using MERN Stack



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III-II CASE STUDIES(A.Y:2024-25)

MACHINE LEARNING

1. Stock Price Prediction (Using Time Series and Regression)
2. Recommendation System for E-commerce (Collaborative Filtering and Content-Based Filtering)
3. Predicting Student Performance Using Regression Models

COMPILER DESIGN

1. Syntax Analyzer Using Recursive Descent Parsing
2. Intermediate Code Generator (Three-Address Code)
3. Constant Folding and Constant Propagation

WEB TECHNOLOGIES

1. Implementing an API-First Web Application Using RESTful Services
2. Developing a Real-Time Collaborative Document Editor Using WebRTC
3. Building a Personal Portfolio Website with HTML5, CSS3, and JavaScript



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IV-II CASE STUDIES(A.Y:2022-23)

DESIGN PATTERNS

1. Implementing the Singleton Pattern in a Multi-Threaded Environment
2. Building a Scalable Notification System Using the Observer Pattern
3. Designing a Payment Gateway Integration with the Strategy Pattern

CLOUD COMPUTING

1. Designing a Cloud-Based File Storage and Sharing System Using AWS S3
2. Building a Scalable E-Commerce Application on Microsoft Azure
3. Implementing Serverless Architecture Using AWS Lambda and API Gateway

COMPUTER VISION

1. Implementing Facial Recognition for Security Systems Using OpenCV
2. Building a Real-Time Object Detection System with YOLO (You Only Look Once)
3. Developing a License Plate Recognition System for Vehicle Tracking



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IV-II CASE STUDIES(A.Y:2023-24)

DESIGN PATTERNS

1. Creating a User Authentication System Using the Factory Pattern
2. Using the Adapter Pattern to Integrate Third-Party APIs into a Web Application
3. Building a Command-Line Application with the Command Pattern

CLOUD COMPUTING

1. Designing a Multi-Tenant SaaS Application on Google Cloud Platform (GCP)
2. Building a Cloud-Based Data Backup and Disaster Recovery System
3. Implementing Cloud Load Balancing for High Availability in Web Applications

COMPUTER VISION

1. Creating a Hand Gesture Recognition Application Using Deep Learning
2. Designing an Automatic Image Captioning System with Convolutional Neural Networks (CNNs)
3. Building a Face Mask Detection System for Public Health Safety



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IV-II CASE STUDIES(A.Y:2024-25)

DESIGN PATTERNS

1. Developing a Caching System Using the Proxy Pattern
2. Implementing a Shopping Cart System with the Composite Pattern
3. Designing a State Machine for Workflow Management Using the State Pattern

CLOUD COMPUTING

1. Creating a Cloud-Based IoT Solution for Smart Home Automation
2. Deploying a Machine Learning Model on the Cloud Using AWS SageMaker
3. Building a Cloud-Based Real-Time Messaging System with Firebase

COMPUTER VISION

1. Developing an Image Classification System Using Transfer Learning
2. Implementing Optical Character Recognition (OCR) for Text Extraction from Images