Special Training Program basics in Software Development

# Introduction

This 5-week special training program is designed for students exploring basics in software development. The program aims to equip them with basic essentials in Software Development, Python (Django and Flask), DevOps techniques, and Frontend technologies. The structure should be friendly, enjoyable, and easy to understand, ensuring a comprehensive and fulfilling learning experience.

# Week 1: Foundations of Software Development

## Objectives

1. Understand the basics of software development.  
2. Learn about different programming paradigms and methodologies.  
3. Get hands-on experience with basic coding practices.

## Tasks

1. Research and present on different software development methodologies (Agile) and basics in SDLC (Software Development Life cycle)   
2. Implement basic data structures and algorithms in Python. (Here you will have to solve the given minimum 3 questions, Questions are provided on separate text files)  
3. Develop a small application using Python.

# Week 2: Python Web Development with Django

## Objectives

1. Understand the fundamentals of web development with Django.  
2. Learn about the MVC architecture and how it applies to Django.  
3. Build a basic web application using Django.

## Tasks

1. Set up a Django project and create a simple web application.  
2. Implement user authentication and CRUD operations.  
3. Deploy the Django application to a cloud platform (e.g., Heroku).

# Week 3: Python Web Development with Flask

## Objectives

1. Learn about the fundamentals of web development with Flask.  
2. Understand how to build RESTful APIs with Flask.  
3. Develop a small web application using Flask.

## Tasks

1. Set up a Flask project and create a simple web application.  
2. Implement RESTful APIs and connect to a database.  
3. Deploy the Flask application to a cloud platform (e.g., AWS).

# Week 4: DevOps Techniques

## Objectives

1. Understand the principles and practices of DevOps.  
2. Learn about CI/CD pipelines and their importance.  
3. Implement a basic CI/CD pipeline for a web application.

## Tasks

1. Study and summarize key concepts of DevOps.  
2. Set up a CI/CD pipeline using GitHub Actions and Docker.  
3. Deploy a web application using the CI/CD pipeline.

# Week 5: Frontend Technologies

## Objectives

1. Learn about modern frontend technologies and frameworks.  
2. Understand how to build responsive and interactive web interfaces.  
3. Develop a small frontend project using a popular framework.

## Tasks

1. Explore and present on different frontend frameworks (React, Vue, Angular).  
2. Build a responsive web interface using React or Vue.  
3. Integrate the frontend with a backend API and deploy the application.

# Additional Resources and Activities

Weekly Code Reviews: Encourage peer code reviews for continuous improvement.  
Stand up cycles: Team discussion sharing progress, challenges and take away.  
Hackathons: Organize mini-hackathons to foster creativity and teamwork.  
Mentorship Sessions: Pair to pair conversation between students and mentors.