Bytexl's guided projects
Students' User Guide

Build job relevant skill sets by developing solutions to practical use cases

Bytexl's educators have created specialised guided projects so you can practice current technology languages / softwares such as Python, Java, Nodejs, …..

In about <2 hours>, you can build a project enhancing your job relevant skills as your educator guides through with a specially created hands-on experience available on Bytexl's app.

INSTRUCTIONS FOR STUDENTS:

Project based learning course overview:

About the project:

In this guided project, you will build a solution for an **Intelligent Faculty Leave Management with Proxy Assignment: A Comprehensive System Approach.** The project will provide hands-on experience with real-time problems faced in educational institutions and how to automate and manage faculty leave requests along with assigning proxy faculty efficiently.

Prerequisites:

- Basic knowledge of Python programming.
- Familiarity with Flask for web development.
- Understanding of SQL and MySQL databases.
- Basic understanding of web development, API calls, and email automation.
- Familiarity with using the Nimbus platform.

What will you learn?

By completing this project, you will learn how to:

- Develop a web application using Python and Flask.
- Handle user authentication and authorization (Login/Logout).
- Design database models and relationships using SQLAlchemy for MySQL.
- Implement leave request management workflows and proxy assignment logic.
- Send email notifications to faculties using Flask-Mail.
- Integrate real-time features like calendar events and data handling for leave management.

Skills you will practice:

- **Flask Web Development**: Develop a fully functional web application with Flask.
- **Database Management**: Using MySQL to store and manage data.
- **Email Automation**: Sending automated emails using Flask-Mail.
- **Project Deployment**: Using the Nimbus platform to deploy your project and practice job-relevant skills.

How to execute? Your learning platform:

- Practice new skills by completing job-related tasks
- No downloads or installation required. Use your Nimbus access to access all the tools.
- Practice on your desktop or laptop. This cannot be developed on your mobile phones.

Use Nimbus on Bytexl's platform:

Learn, practice and enhance job relevant skills in just 20 hours

- Receive detailed instructions from instructors
- Gain hands-on experience solving real-world case studies
- Enhance your confidence with solutions developed on Nimbus using the latest tools and technologies

Learn step-by-step:

In this guided project, you will find your educator giving you a walk-through to complete your project in 20 hours.

Structure for educators:
How to create the use cases for students to practice?
Instructions:

Welcome to **Intelligent Faculty Leave Management with Proxy Assignment: A Comprehensive System Approach.** This is a guided project which will take about 20 hours to complete.
Here are the course objectives and structure:

Course Objectives:
In this project, we will focus on the following objectives:

- Designing and developing a faculty leave management system.
- Implementing a proxy assignment system to cover for the leave.
- Automating notifications (via email) for leave approval and proxy assignments.

By the end of this project you will be able to

- Build a Flask-based web application.
- Design and implement the necessary database models for leave and proxy assignment.
- Send email notifications for leave approvals and proxy assignments.
- Deploy your project on the Nimbus platform using Flask and MySQL.

Course Structure:
This course is divided into 3 parts:

Course overview: This is the introductory reading material.

Project structure:

The hands on project on **Intelligent Faculty Leave Management with Proxy Assignment: A Comprehensive System Approach** is divided into following tasks:

- **Task 1**: Set up Flask and MySQL with Nimbus.
- **Task 2**: Create database models for LeaveRequest, ProxyAssignment, and FacultyDetails.
- **Task 3**: Develop the core application logic for handling leave requests and proxy assignments.
- **Task 4**: Implement user authentication (Login/Logout) and email notifications.
- **Task 5**: Test the system and deploy it on the Nimbus platform.

Meet your educator:

Your educator will guide you step-by-step through the tasks and help resolve any issues that arise.

About the Nimbus Platform and the tools required for this project:

Nimbus provides an online environment where you can develop, test, and deploy your projects.
Tools required for this project:

- Python (Flask)
- MySQL Database
- Flask-Mail (for sending emails)

Expected Outcomes:

By completing the project, students should have:

- A fully functional web application for faculty leave management.
- An understanding of integrating Flask with MySQL and email systems.
- A deployed project on Nimbus that can be used for real-world applications.

Quiz Questions :

1. **What is the primary purpose of Flask in the Intelligent Faculty Leave Management system?**
    - a) To manage database connections.
    - **b) To create the web application.**
    - c) To send emails to faculties.
    - d) To handle proxy assignments.
2. **Which of the following is a key feature of the Proxy Assignment functionality in this project?**
    - **a) Sends email notifications to proxy faculty and original faculty.**
    - b) Approves leave requests automatically.
    - c) Calculates leave days for the faculty.

- d) Generates invoices for proxy faculty.

3. **Which database is used to store leave request and proxy assignment data in this project?**
   - a) MongoDB
   - b) PostgreSQL
   - **c) MySQL**
   - d) SQLite
4. **Which Python library is used for sending emails in this project?**
   - a) Flask-SQLAlchemy
   - **b) Flask-Mail**
   - c) Django
   - d) smtplib
5. **What is the first task in the guided project?**
   - **a) Set up Flask and MySQL with Nimbus.**
   - b) Develop the email notification system.
   - c) Test the proxy assignment functionality.
   - d) Design the user interface.

Earn a Certificate: After you have completed the **Intelligent Faculty Leave Management with Proxy Assignment: A Comprehensive System Approach** hands-on project, you should

- upload your code for it to be assessed
- complete the Quiz to assess your knowledge.

You will earn a certificate if you score 80 % or more.