Bytexl's guided projects

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.

Educators should create a Guided Project for students to execute on the Bytexl App. Students should be able to complete the project in a short duration of time: 20 hours and the use case chosen should enable them to attend interviews with confidence.

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Educators should create a project scenario which will enhance the job relevant skills as they guide the project through with a specially created hands-on experience available on Bytexl's app.

Note: Placeholders have been created for educators to appropriately fill in the relevant details

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Guided projects should be created with the following content:

Project based learning course overview:

In this guided project, students will develop a Time-Entry application using Django, following a hands-on approach to understand the fundamentals of backend web development, time tracking, and HR analytics. The project provides a real-world scenario where students will track time entries and learn essential techniques for creating, managing, and analyzing task-based logs.

About the project:

The Time-Entry Application is a project designed to help students understand how to build a functional time-tracking system. Students will implement features like user authentication, time logging with start and end times, timer functionality, and data analysis on time logs. This project mimics the needs of HR analytics tools, providing exposure to task logging, project management, and productivity insights.

Prerequisites:

Students should be familiar with:

- Basic programming concepts
- Python fundamentals
- Django framework basics (models, views, and templates)
- Basic HTML and CSS for frontend integration
- Version control with Git

What will you learn?:

- How to develop a Django-based application for real-world use cases.
- The importance of time tracking in HR analytics.
- Backend development essentials, including CRUD operations and data storage.
- User authentication and role-based access control.
- Basics of UI/UX for building intuitive forms and dashboards.

Skills you will practice:

- **Python & Django Development**: Gain hands-on experience with Django for backend development.
- **Database Management**: Manage data entries, queries, and data export.
- **Web Application Security**: Implement user authentication and secure data storage.
- **UI/UX Fundamentals**: Design user-friendly forms and dashboards.
- **Data Visualization**: Present time-tracking insights through charts and graphs.
- **Time Management Software**: Learn to build features such as timers and time-logging interfaces.

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>

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- 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 <Timesheet Tracking Application>. This is a guided project which will take about <20 hours> to complete.
Here are the course objectives and structure:

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

- **Objective 1**: Develop an application to track time spent on different tasks, categorized by projects.
- **Objective 2**: Implement user authentication and data privacy through role-based access control.
- **Objective 3**: Build a dashboard to summarize logged hours and visualize time distribution.

By the end of this project you will be able to create a functional time-entry application and understand how HR analytics tools use time data to improve productivity and efficiency.

You will deploy the project on the Nimbus Platform using Nimbus Platform using Django and SQLite.

Course Structure:
This course is divided into 3 parts:

1. **Designing and Prototyping**
2. **UI/UX Design**
3. **Backend Development**

Course overview: This is the introductory reading material.

Project structure:

The hands on project on < Timesheet-Tracking Application> is divided into following tasks:

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Task 1: Project Setup and Environment Configuration

- **Description**: Set up the Django project environment and configure necessary dependencies, including Django and PostgreSQL.
- **Relevance**: Establishes the foundation for building the application and managing project dependencies.

Task 2: User Registration and Authentication

- **Description**: Create user registration and login features to ensure secure access. Implement role-based access for project managers and end-users.
- **Relevance**: Demonstrates how to secure a web application and manage user roles within Django.

Task 3: Time Entry Form and Timer Feature

- **Description**: Develop a form for users to log time entries, including fields for task name, project, start and end time. Add a timer to record time automatically.
- **Relevance**: Introduces core aspects of time tracking, enabling students to implement CRUD operations.

Task 4: Database Management and Data Validation

- **Description**: Structure the database to store time entries and validate inputs to prevent incorrect data. Ensure accurate time tracking with validation on start and end times.
- **Relevance**: Provides practical skills in data validation and database schema design.

Task 5: Dashboard and Time Analysis

- **Description**: Build a dashboard displaying logged hours and charts summarizing time distribution across projects. Add date filters to analyze specific periods.
- **Relevance**: Teaches students to create meaningful data summaries and visualize information to aid productivity insights.

Task 6: Data Export and Deployment

- **Description**: Implement a feature to export time entries in CSV format and deploy the application on the Nimbus platform.
- **Relevance**: Introduces deployment practices and data export for integration with other HR systems.

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Meet your educator:

Hi! I am Rudra Joshi, and I will be your instructor for this course. I have over 4 years of experience in AI and Machine Learning. My background includes roles as AGM, Applications Development at Medicover Hospitals, Hyderabad, and as an AI Engineer at Cloudoffis, Gujarat. Currently, I am the CEO of Omegaclouds Technologies Private Limited, specializing in GenAI solutions for HR analytics. I hold a Bachelor’s degree in Data Science from Gujarat University and a Master’s degree in Data Science from Chandigarh University. When I’m not teaching, I enjoy cricket and yoga.

Welcome to the Guided Project!

About the Nimbus Platform:

Go to the **Django** section on Nimbus, where you will find a project that bootstraps this application, making it easy to get started with the Timesheet-Tracking Application.

Earn a Certificate: After you have completed the **<Title of the Project>** hands-on project, you should complete the Quiz to assess your knowledge. You will earn a certificate if you score 80 % or more

References:
Educators can access the links given below or any other resource for sample use cases and a basic understanding of how to create the project scenarios

Sl. No.	Some References for educators
1	https://leetcode.com/problem-list/du693s/
2	https://www.geeksforgeeks.org/coding-projects-for-beginners/#8-quiz-game
3	https://neetcode.io/courses
4	https://www.designgurus.io