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.

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 have a basic understanding of:
- 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?
Students will 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.
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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.

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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 Timesheet-tracking application and understand how Web Development 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 dependencies (e.g., Django and PostgreSQL).
- **Relevance**: Lays the foundation for a robust development environment, ensuring compatibility with project requirements.

Task 2: Database Schema Design and Implementation

- **Description**: Design models for the product catalog, services, and user inquiries, then create and apply migrations.
- **Relevance**: Builds a structured data system, enabling efficient data management and retrieval.

Task 3: User Interface and Navigation Setup

- **Description**: Create the frontend layout, including the homepage, service pages, and product listings. Set up navigation paths.
- **Relevance**: Provides students with experience in UI design and navigation structure, focusing on user engagement and accessibility.

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 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: Deployment and Performance Optimization

- **Description**: Prepare the project for deployment on the Nimbus platform, optimize for performance, and settings.
- **Relevance**: Guides students through final deployment practices and prepares the website for real-world usage.

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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 our Timesheet-Tracking Application.

Expected Outcomes:

By completing this project, students will achieve the following outcomes:

1. **Develop a Functional Timesheet-Tracking Web Application**:
    - Students will create a fully functional timesheet application using Django, where users can log and manage time entries related to specific tasks and projects. This outcome demonstrates foundational skills in backend development and working with real-world data scenarios.
2. **Implement User Authentication and Data Privacy**:
    - Students will implement secure user registration, login, and logout functionality, allowing users to access only their own time entries. This outcome highlights essential skills in web security, including session management and data privacy.
3. **Design and Build Time Entry and Timer Functionality**:
    - Students will create a time entry form where users can log start and end times for tasks, with the option to use a timer for automatic tracking. This outcome introduces students to time management software features, strengthening their understanding of form handling and CRUD operations in a web application context.
4. **Create a Dashboard for Time Analysis and Insights**:
    - Students will develop a dashboard that displays time summaries, visualizations, and filters, allowing users to analyze their logged hours by project or date. This outcome reinforces data visualization skills and highlights the importance of organizing information to support productivity insights.
5. **Handle Data Storage and Export Features**:
    - Students will design a data storage system using Django models and enable CSV export for users to download their time entries. This outcome prepares students for real-world applications where data export and integration with other systems is essential.
6. **Deploy the Project on the Nimbus Platform**:
    - Students will deploy their Timesheet-Tracking Application on the Nimbus platform, gaining practical experience with project deployment and platform-specific configurations. This outcome ensures students are familiar with the deployment process and environment configuration.
7. **Practice Project Management and Problem-Solving**:
    - By following a structured approach through each phase of the project, students will develop key project management and problem-solving skills. This outcome reflects their ability to work through a full development cycle and manage time and resources effectively.

Quiz Questions :

1 . What is the primary purpose of a time-entry application in a workplace setting?

- A. To track employee attendance
- **B. To record and analyze time spent on tasks or projects**
- C. To calculate payroll
- D. To manage employee leave requests

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2. In the Time-Entry Application, which feature allows users to automatically record the time they spend on a task?

- **A. Timer Feature**
- B. Data Export
- C. Authentication Module
- D. Task Summary Dashboard

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3. Which Django library is typically used to enhance form styling and make it more user-friendly?

- A. django-widget-tweaks
- **B. django-crispy-forms**
- C. djangorestframework
- D. psycopg2-binary

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4. What role does the dashboard play in the Time-Entry Application?

- A. It allows users to create new time entries.
- **B. It provides an overview and analysis of logged time entries.**
- C. It manages user authentication and security.
- D. It exports data in various formats.

5. Which of the following components is essential for securing user access in a time-entry application?

- A. Dashboard summary
- B. Timer functionality
- **C. User authentication and role-based access control**
- D. Data export feature

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

- 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.