

# Python Web Framework Regular Exam – 12/13 August 2023

## Individual Project Assignment

This is the Individual Project Assignment for the [Python Web Framework Course @ SoftUni](#).

### 1. General Requirements

Your Web application should use the following technologies, frameworks, and development techniques:

- The application must be implemented using **Django Framework**
  - The application must have at least **10 web pages**:
    - Can be created using **function-based views** or/and **class based-views**;
    - At least **5 of them must be class-based views**.
  - The application must have at least **5 independent models** (models created by extending, inheritance, and one-to-one relation are considered as one model ( for example User <--> Profile )).
  - The application must have at least **5 forms**.
  - The application must have at least **5 templates**.
- Use **PostgreSQL** as a **Database Service**
  - Optionally, you can use **multiple storages** (including PostgreSQL), e.g., files, other Web services, databases (e.g., **MySQL/MariaDB/Oracle** / etc.)
- Use **Django Template Engine** or make the **Front-End** using **JavaScript**.
- **Templates** (your views must return HTML files) - **the same template could be re-used/ used multiple times** (according to adjustments, if such needed).
- Implement **Web Page Design** based on **Bootstrap / Google Material Design**, or **design your own**.
- The application must have **login/register/logout** functionality.
- The application must have **a public part** (A part of the website, which is accessible by everyone - un/authenticated users and admins).
- The application must have **a private part** (accessible only by authenticated users and admins).
- The application must have **a customized admin site** (accessible only by admins):
  - Add at least 5 custom options (in total) to the admin interface (e.g., filters, list display, ordering, etc.).
- **Unauthenticated users** (public part) **have only 'get' permissions**, e.g., landing page, details, about page, and login/ register 'post' permissions.
- **Authenticated users** (private part) **have full CRUD for all their created content**.
- **Admins** - at least **2 groups** of admins:
  - One **must** have permission to do **full CRUD functionalities (superusers)**;
  - The other/s have permission to do **limited CRUD functionalities (staff)**.
  - User **roles** could be **manageable** from the admin site.
  - Make sure the **role management** is **secured** and **error-safe**.

- Implement **Exception Handling** and **Data Validation** to avoid **crashes** when **invalid data** is entered (both **client-side** and **server-side**)
  - When validating data, show appropriate messages to the user

## 2. Online Project Defense

Each student will have to deliver an **online defense** of their work in front of a trainer jury. Students will have **only 20 minutes**, which must be allocated as follows:

- **Demonstrate** how the application works (very shortly).
- Show the **source code** and explain how it works.
- Answer the jury's **questions**

Please be **strict with the timing!** On the 10<sup>th</sup> minute, your presentation ends. The remaining time will be for the Question/Answers session.

Open the project assets **beforehand** to save time.

Be **well prepared** to present the maximum of your work within the time given. It is highly recommended that you practice the presentation at home with a stopwatch to ensure that you will fit in the time provided.

## 3. Assessment Criteria

### General Requirements – 70%

- **Functionality - 0...20**
- Implementing **views correctly** (views should only do their work) – **0...5**
- Implementing **models correctly** - **0...5**
- Implementing **forms correctly** - **0...5**
- Implementing **templates correctly** (using the template language) – **0...5**
- Implement **Responsive Web Page Design** - **0...5**
- Implementing **login/register functionality correctly** - **0...5**
- **Exception handling** and/or **Data validation** (validation in the models and/or the forms) – **0...5**
- **Security** (prevent SQL injection, XSS, CSRF, parameter tampering, etc.) – **0...5**
- **Code quality** (well-structured code, following the MTV pattern, following SOLID principles, etc.) – **0...10**

### Answering Questions – 30 %

Answer theoretical questions from all courses in SoftUni's Python program and potential functionality outside the scope of the project.

### Bonuses – up to 15 %

- Write tests (**Unit & Integration**) for your **views/models/forms** - at least 10 tests
- Writing **asynchronous view/s** somewhere in the project
- **Extend your Django project with REST Capabilities**
- Extend **Django user**
- Host the application in a **cloud environment**
- **Additional functionality**, not explicitly described in this section, will be counted as a bonus if it has practical usage

## 4. Submission Deadline

- You **must** submit a **link** to your project **before 23:59 on 31-Jul-2023** using a survey that will show up on **24-Jul-2023**. You **can continue working** on your project until the end of 11-Aug-2023.
- A presentation schedule will be available on **09-Aug-2023** and will include only the projects that were **submitted beforehand**. Non-submitted projects will **NOT** be evaluated.

## 5. Additional Requirements

- Follow the **best practices** for **Object-Oriented design** and **high-quality code** for the **Web application**:
  - Use **data encapsulation**.
  - Use **exception handling** properly.
  - Use **inheritance**, **abstraction**, and **polymorphism** properly.
  - Follow the **principles** of **strong cohesion** and **loose coupling**.
  - Correctly **format** and **structure** your **code**, name your **identifiers**, and make the code **readable**.
- Well-looking **user interface (UI)**.
- Good user experience (**UX**).
- Use a **source control system** by choice, e.g., **GitHub**, **BitBucket**.
  - Submit a link to your public source code repository.

## 6. Project Challenge

The **three best projects** will win a discount for the next course or module:

- First place - **80%** discount voucher
- Second place - **50%** discount voucher
- Third place - **30%** discount voucher

The ranking of the projects is done **based only on the submitted project** (it does not include the assessment of the theoretical exam). The voucher could be used for **one course or for one module in the open or the professional program at SoftUni**. It **cannot be divided** into parts or **given to another person**. The voucher is valid for **one year** since the announcement of the winners.

We will connect **personally** with the three winners. We will **not publish** the winners' names.