

# Project Expat Assistance

Project proposal in the field of Python/SQL

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# Introduction

At this project we aim at developing a website which will be dedicated to assist Expats in Poland with legal advice.

The backend framework will be built using the Python and the SQL as the database management system.

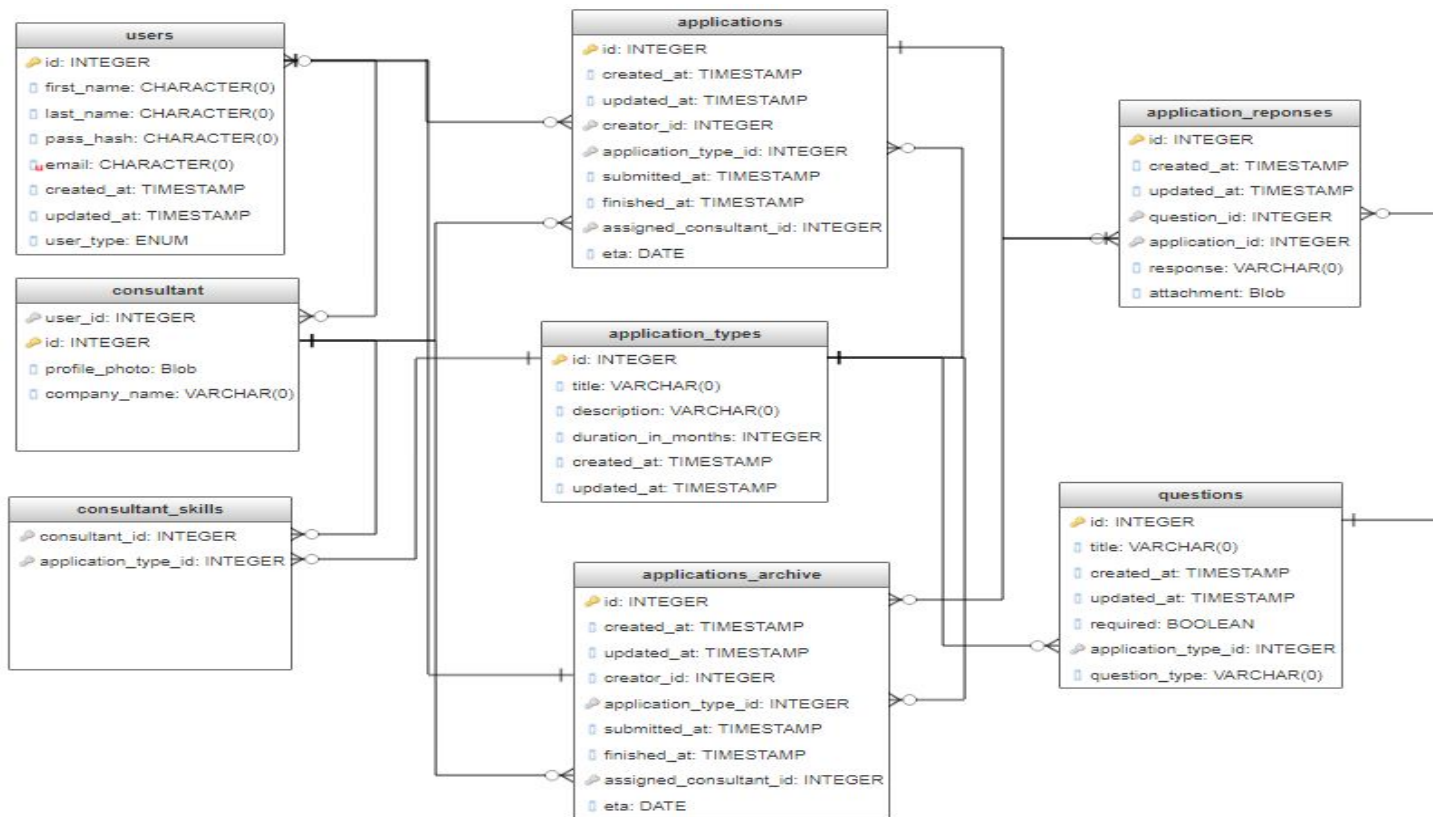
The complete version of the programming and development will be carried out using the Jupyter Notebook as the integrated development environment (IDE) for Python and SQLite will be used as the database engine.

Additionally, Flask is chosen as the web framework for the webpage development.

Website mockup was created using Figma.

! Please note the proposal outlines high level objectives of the project. Actual features and implementation may be immaterially amended in the development phase, and are primarily dependent on team technical skillset and time constraints.

# Database Scheme



# Login and registration page

This page allows the user to login if they are already registered or register a new account on the website if not.

This page will be powered by the following queries:

1. **Duplicate User Details** - the goal of this query is to see if the email address is already registered. This will be a simple *SELECT* query first run when pressing the register button
2. **Create User** - This will be an insert query that will insert the user details into the database and register the user. *Trigger* can be used to setup an automatic user ID and It will fail if the user email already exists, showing an Error.
3. **User Login Query** - This query will get user email and password from the database. It will be a simple *SELECT* query. This will be used to make sure the user has added the right details so that we can login the user into the app.

Welcome to Expat Assistance

Register to start a new case

Email

Password

Login

Name

Surname

Password

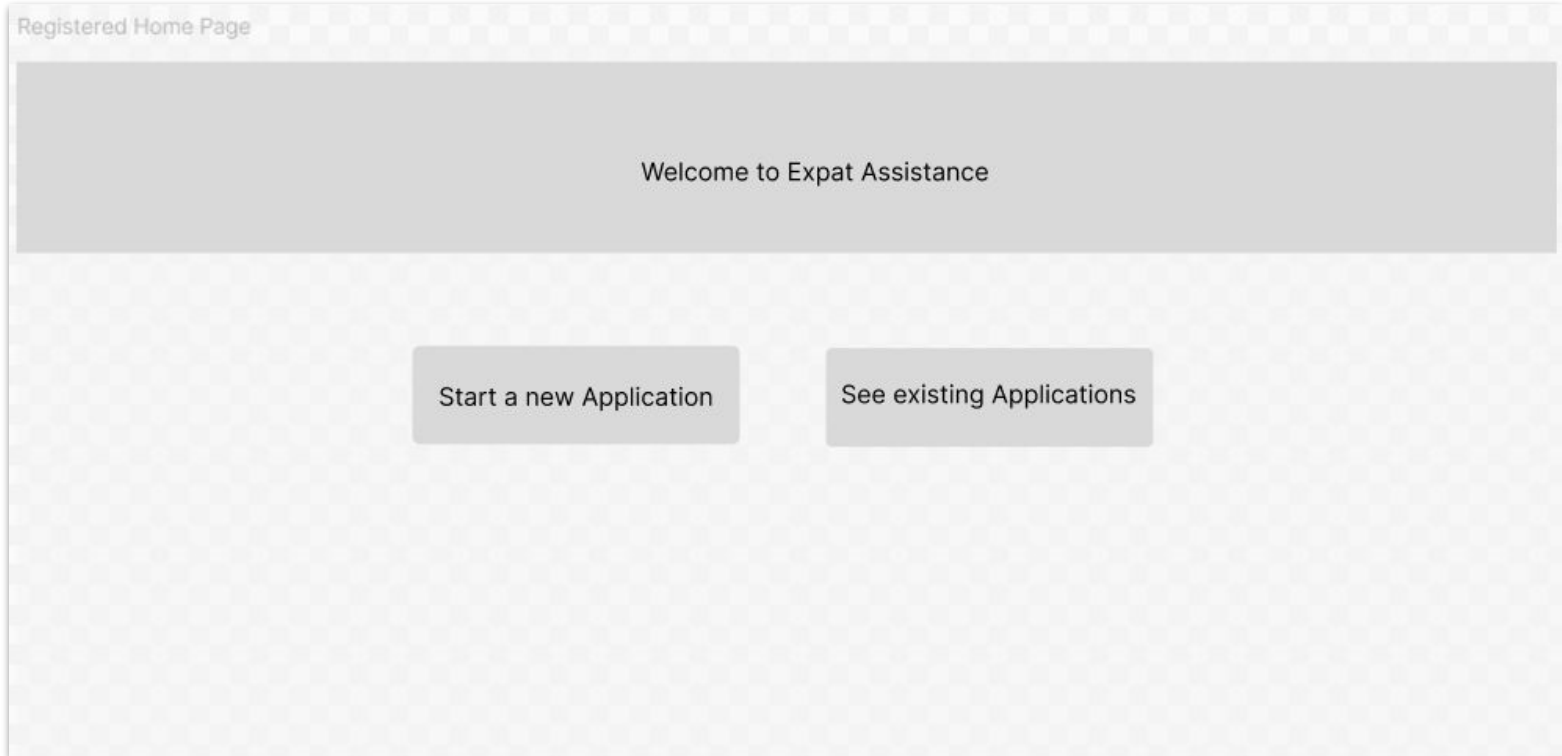
Confirm password

Email

Register

# Registered Home Page

This is a status page, with 2 buttons. There will be no queries required to display this page



## Application List Page

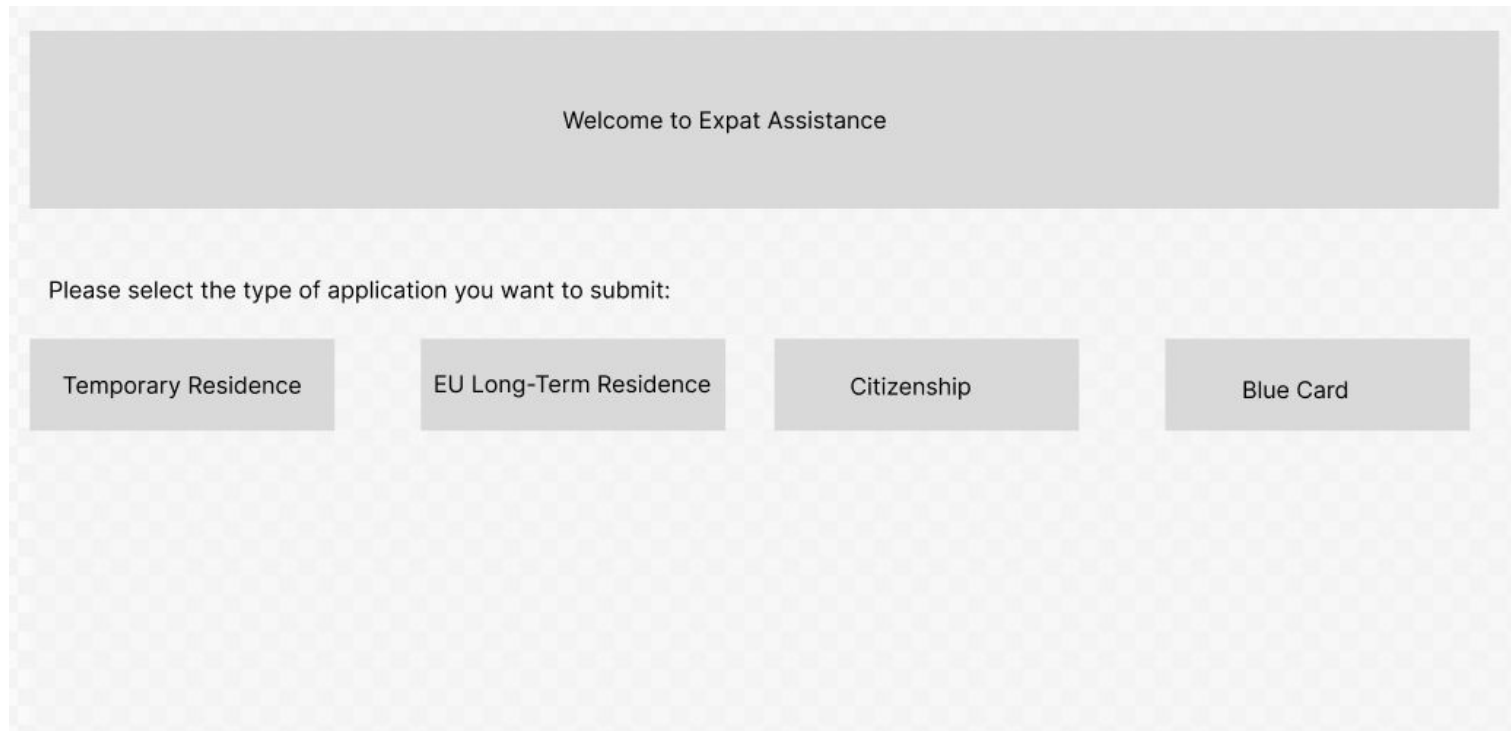
This page allows users to find information about existing applications or start a new application.

**Get User Applications** - This query will get all the applications that have previously been created by the user. It will be a *SELECT* query, JOINING multiple tables, filtered by the user id. This page can also be displayed as a *VIEW* which will be queried after (*TBD*)

[illegible]

# Application Page

User is directed to this page if chosen to start a new application in the previous page. We display all the different application types that the user can select to start a new application. It is a programmed button where users select the desired choice.



Welcome to Expat Assistance

Please select the type of application you want to submit:

Temporary Residence

EU Long-Term Residence

Citizenship

Blue Card

# Application Form

Based on chosen application type in the previous page, this page offers a questionnaire for a user to answer (different questions for each application type)

Queries required for this page:

1. **Get Application Type Questions** - This query SELECTs all questions from questions table where application type is the application type chosen by user in previous page
2. **Insert Application** -
  - A. Query to INSERT application data to the applications table
  - B. Query to INSERT responses to the questionnaire to the responses Table.

The form is titled "Application for Temporary Residence" in a grey header. It contains the following elements:

- A label "Checkbox with label" above the first question.
- A question "What is your legal first name?" with a text input field below it.
- A question "What is your legal last name?" with a text input field below it.
- A question "Did you graduate in Poland?" with a radio button (labeled with a blue dot) and a text input field.
- A question "Tell us if you have any previous rejection when getting temporary resident permit and why that happened?" with a large text area below it.
- A blue "Submit Application" button at the bottom right.

\* Please note questions will be dependent on the application type and will be developed during project prep. Form presented above is only indicative visual for mockup purpose.



## Consultant side:

This page allows consultants to see all existing applications assigned to the logged in consultant and applications that can be picked up by consultant to start.

Queries required for this page:

### 1. Get Consultant Applications -

This is a SELECT query to display information about applications tagged to a specific consultant or not tagged to anyone yet, filtered by consultant id or NA, involving multiple table join.

### 2. Update case -

Consultant to UPDATE assigned consultant id, status and ETA based on the application ID in the applications table. This will be reflected to the user's side using *SELECT* query inner joining FROM Consultant table for consultant name, User application for the ETA time and User table for viewing on the Application list page, providing the full details of the list of application. There will be usage of **subqueries** with *WHERE* and *IN* for application id and user name.

Welcome to Expat Assistance

Application Type	Application Status	Application Duration	Application Start Date	Assigned Consultant
Resident Permit	In Progress	2 months	2nd Dec 2022	N/A
EU Permit	Finished	3 months	22nd Sept 2022	Mike Jordan
Blue Card	Finished	4 months	2nd June 2022	John Smith

## Consultant side:

This pages allows consultants to see client responses to questionnaire of a particular Application

This page is powered by following queries:

1. SELECT query to display questionnaire responses filtered by application id, JOINning multiple tables

Welcome to Expat Assistance							
Application questionnaire responses							
creator id	name	surname	application type	application id	question	response	updated at

## Admin site / Consultants view / Stats

This page aims at offering various useful statistics on the applications and their progress for consultants and admins. This should answer multiple business questions. This will be based on a complex VIEW query involving 3+ table joins and subqueries. Then VIEW will be queried to answer below questions and (TBD) turn into a charts using matplotlib or other viz package:

1. What's the peak month for submitted applications?
2. Who are the top consultants in terms of case closure?
3. Average age of an applicant ?
4. What's most popular application type?

## Other queries / requirements:

- **Query with trigger:**

For audit purposes, BEFORE DELETE trigger will be fired on the application table. Deleted records will be saved in applicatios\_archive table.

- **Indexes applied for the following columns as these most used and are in biggest tables to optimize computation time**

1. Application\_responces.application\_id
2. Questions.application\_type\_id
3. Applications.application\_type\_id

## Useful Packages and Modules for the Project

- flask as a web framework, classes like Flask, render\_template, debug, static\_file, request, redirect, response, url\_for, etc., are imported.

### Packages and Modules:

- time
- random
- string
- sqlite3
- logging
- logging.handlers
- pandas
- Matplotlib

\*This list is preliminary, packages list will be definitely expanded during work on a project

## Division of Project Task

	<b>Anirban Das</b>	<b>Palina Tkachova</b>
1.	Code/Database for login and Registration.	Code/Database for Application list and Home
2.	Code/Database for Application page	Code/Database for Application form page
3.	Code for Consultant Overview	Database design for Consultant Overview
4.	Visualization of the assigned pages	Visualization of the assigned pages