

Python / Django Practical Test

Complete the following tasks. The time to complete all the below tasks is 2 hrs.

1. Create a Python Function to perform a calculation based on the following mathematical function

$$\sum_{i=1}^n 1 / (x^i)$$

Do not use the Math library to perform this task. Perform this task using two different methods. One of the methods should be using recursion.

2. Write a Python function to find the next number in the series:

2, 3, 10, 15, 26, 35, 50, 63, ?

3. Write a Python Code that takes input as the values of x, y, a, b to solve the following equation:

$$[\{x + (1/y) \}^a * \{x - (1/y)\}^b] / [\{y + (1/x) \}^a * \{y - (1/x)\}^b]$$

4. Create a custom Django user model to input email, password, phone for creating a login. Email will be used as the username for authentication. Validate the authentication

5. Create a Django application with frontend using templates to input the value of x and n in Question 1. The application will have a view that will be used to access the API which implements the function created in Question 1. The url to access the API should be in the format:

<http://localhost:9000/api/v1/calculate>

Only authenticated users should be able to access this API.

Note: It is important that you follow coding best practices.