Solo Assignment Design and Development Report

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Introduction

For my solo assignment project for the Enterprise Software Development course, I developed a web application in Python with Django, for users to be able to choose and donate to a loch from more than 3000 lochs in Scotland, according to the specified prices. The donor can be honoured with the title of Lord of Loch for the specific loch. This report documents the design, development, implementation, installation, and use of the application, highlighting key aspects of each stage.

Software architecture design

The software architecture for the application was designed using Model-View-Controller (MVC) pattern. A models.py file was created in the Model unit to define data models for the application, create linked tables, and generate the database schema. In the Controller unit, a views.py files was created to handle user requests and generate responses, and render templates to generate HTML output for the application upon request. For the View unit, a number of HTML files were included in the templates folder for presentation of the data for different web pages of the application, specifically the index page, the pages showing the list of lochs and the detailed information for the lochs, and the page for user to make donation to a loch and confirm the donation order. In addition, stylesheet files were used for styling of HTML elements within the web pages of the application for the desired presentation.

Software development and key features

In developing the application, I used Python with Django framework for backend development, HTML and CSS for frontend. Initially, a dataset containing more than 3000 records of lochs in Scotland was obtained from a source of open data, and loaded into the database of the application. Then the basic project structure was set up for designing the index page and the page for the list of lochs, and the pages for displaying the detailed information of the lochs and for users to make donation. The development involved working with Django forms, Django administration and authentication. Tests were conducted in the course of development. A key feature of the application is that users can search the data for specific lochs for donation using keywords. Also, a super user was created for the application, and different levels of access such as administrator, user and guest are provided, where administrator can manage users and orders, guest can browse the site, and user can place order to donate after logging in. Please see the readme file for the super user account name and password.

Deployment and use of application

The repository of this project has been published on Render for users' easy access to use the application. By clicking the button of View Lochs on the home page, the user is directed to a page showing the list of all the lochs in Scotland. This page contains hyperlinks for displaying the detailed information of the lochs including prices and a Donate button that enables a user to place and confirm a donation order. Please note that only registered user can activate the Donate button to place the donation order.

The successful completing of this project is a significant achievement for me. From the project, I have learned to apply the concepts and theories of software development, e.g. MVC model, Django ORM, Django administration and authentication, to practice, towards effective software development.