Java Programming Project 2

Project: Link Shortener Development   **Duration:** 7 Days

Project Overview

As part of your ongoing Java programming internship, we are excited to introduce the Week 2 project, "Link Shortener Development." This project will provide you with valuable hands-on experience in Java programming and web development.

The main goal of this project is to create a simple Link Shortener application using Java. A Link Shortener is a tool that takes a long URL and generates a short, unique identifier, allowing users to share concise links. This project will give you insights into data structures, algorithms, and basic web application development.

Project Objectives

To accurately outline the scope of work required for a project, it is crucial to first identify its objectives. Pinpointing what the project hopes to accomplish will assist in determining its inclusions and limitations.

- Implement a Link Shortener system in Java.
- Develop functions to shorten long URLs and expand short URLs to their original form.
- Ensure the uniqueness of short URLs and handle potential collisions.
- Explore basic error handling and user feedback.
- Gain practical experience in Java programming, data structures, and algorithmic thinking.

Requirements and Features

- Use Java as the primary programming language.
- Create a class or set of classes that manage the shortening and expanding of URLs.

- Implement a basic hash function for generating short URLs.
- Include error handling to address scenarios like duplicate long URLs and invalid short URLs.
- Optionally, consider persisting data to maintain link mappings between sessions.
- Develop a simple command-line interface (CLI) or web-based interface for user interaction.