**Internship Final Report**

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**Major:** Computer Science & Engineering

**Internship Duration:** September 1st, 2024 - September 30th, 2024  
**Company:** ShadowFox

**Domain:** Python Developemn**t**

**Mentor:** Mr. Hariharan

**Coordinator:** Mr. Aakash

### **Objectives**

The primary objective of this report is to highlight the development of two key projects— a web scraper and a Hangman word-guessing game. These projects are part of an intermediate-level Python internship at ShadowFox. The aim is to enhance skills in web scraping, data handling, and game logic implementation, which are crucial in real-world application development.

### **Tasks and Responsibilities**

* · **Web Scraper**: Implement a web scraper using Beautiful Soup or Scrapy to extract relevant data from web pages, specifically focusing on utilizing the ShadowFox website for practical experience.
* · **Hangman Game**: Develop a word-guessing game that simulates the classic Hangman experience with visual progress tracking and the option to play again.

### **Learning Outcomes**

### 1. **Web Scraper**

* **Data Extraction**: Developed a Python program using libraries like Beautiful Soup or Scrapy to extract relevant information from targeted websites.
* **ShadowFox Integration**: Practiced data scraping techniques by focusing on the ShadowFox website, gaining hands-on experience with real-time data.
* **Data Storage**: Extracted data was formatted and stored appropriately, allowing for further analysis or potential use in other applications.
* **Error Handling**: Implemented robust error-handling mechanisms to ensure the web scraper gracefully handles website connectivity issues, incorrect selectors, or unexpected data formats.

### 2. **Hangman Game**

* **Word Selection**: Chose a random word from a predefined list to ensure unpredictability in each game session.
* **Game Setup**: Initialized game variables to keep track of guessed letters, incorrect guesses, and the number of remaining attempts.
* **Display Interface**: Developed a text-based interface that visually represented the hangman figure and displayed the word's progress as correct guesses were made.
* **User Input & Validation**: Implemented a user input system to capture guesses and validate them against the current word, ensuring that the input was in the correct format.
* **Game Loop**: The game ran in a continuous loop until the player either won or lost, with the outcome determined by successfully guessing the word or exhausting all attempts.
* **Play Again Option**: After each game, the player was prompted with an option to play again, resetting the game state when necessary.

### **Challenges and Solutions**

### 1. **Web Scraper**

* **Challenge**: Handling complex HTML structures and dynamically loaded content.
  + **Solution**: Used Beautiful Soup for parsing static content and employed Scrapy to handle dynamic pages. Ensured that CSS selectors were correctly mapped to the desired data fields.
* **Challenge**: Avoiding website blocks due to frequent requests.
  + **Solution**: Implemented a polite scraping approach, introducing delays between requests to prevent overloading the server.

### 2. **Hangman Game**

* **Challenge**: Designing a user-friendly interface within a text-based environment.
  + **Solution**: Implemented a visual representation of the hangman figure and progressively revealed the word as correct guesses were made. Simplified input validation for a smoother user experience.

### **Conclusion**

The intermediate-level tasks assigned during the ShadowFox internship provided valuable experience in practical Python programming. The web scraper project reinforced the importance of data extraction and error handling in real-world applications, while the Hangman game strengthened skills in game logic and user interaction. Together, these projects have contributed to a deeper understanding of Python's capabilities and laid a strong foundation for further development.

### **Acknowledgments**

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instrumental in my personal and professional growth.

This report reflects the integration of academic knowledge with practical skills gained during the

internship, highlighting my journey of learning, growth, and development in the field of Python development.