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Abstract

This assignment focuses on developing a Secure Marketing Application in Python with SQLite, QR codes, and user authentication.

Ct4029 – Principles of programming

Developing a Secure Marketing Application with Python, SQLite, QR Codes, and User Authentication

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# Introduction

I have been tasked with developing a secure marketing application with a graphical user interface that involves the use of SQLite databases, QR codes and certain security features that will prevent SQL Injections. The system should allow viewers to access promotions via QR codes and display additional information about the promotions. In addition to this business accounts are going to need to be able to add information and upload their own QR codes for their promotions. The objectives of this report are fourfold: firstly, to provide a comprehensive account of the design and specification of the Secure Marketing Application, emphasising the chosen design pattern and its rationale; secondly, to document the software development process, showcasing the practical application of Python and programming concepts; thirdly, to outline the testing process, covering test case creation and results analysis; and finally, to prepare a 5-minute video demonstration illustrating the application's functionality. The scope encompasses in-depth discussions on design choices, coding practices, testing strategies, and video demonstration content.

# Design of the System

* + Overall System Architecture
  + GUI Design and Wireframes
  + User Authentication Design
  + QR Code Generation and Scanning
  + SQLite Database Structure
  + Implementation Logic
  + Code Snippets, Diagrams, Screenshots

# Testing the System

* + Test Cases and Test Scenarios
  + Test Results
  + Discussion on Failed Tests
  + Test Coverage Evaluation

# Conclusion

* + Summary of Achievements
  + Lessons Learned
  + Future Enhancements

# References

* + Academic Sources, Journals, Books, and Websites Used

# Appendices

# Appendix: User Guide

* + - Instructions for Registration
    - Viewing Promotions
    - Generating and Scanning QR Codes
    - Tracking Interactions with Promotions

# Appendix 2: Source Code

* + - GUI Code
    - SQLite Database Code

# Appendix 3: Test Suites

* + - Detailed Test Cases and Scenarios

# Video Demonstration

* + Link or Embed the 5-minute Video Demonstration