Software Requirements Specification (SRS) for Password Generator

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1. Introduction

1.1 Purpose The purpose of this document is to define the software requirements for the Password Generator application. It outlines the functionality, constraints, and assumptions of the software to be developed.
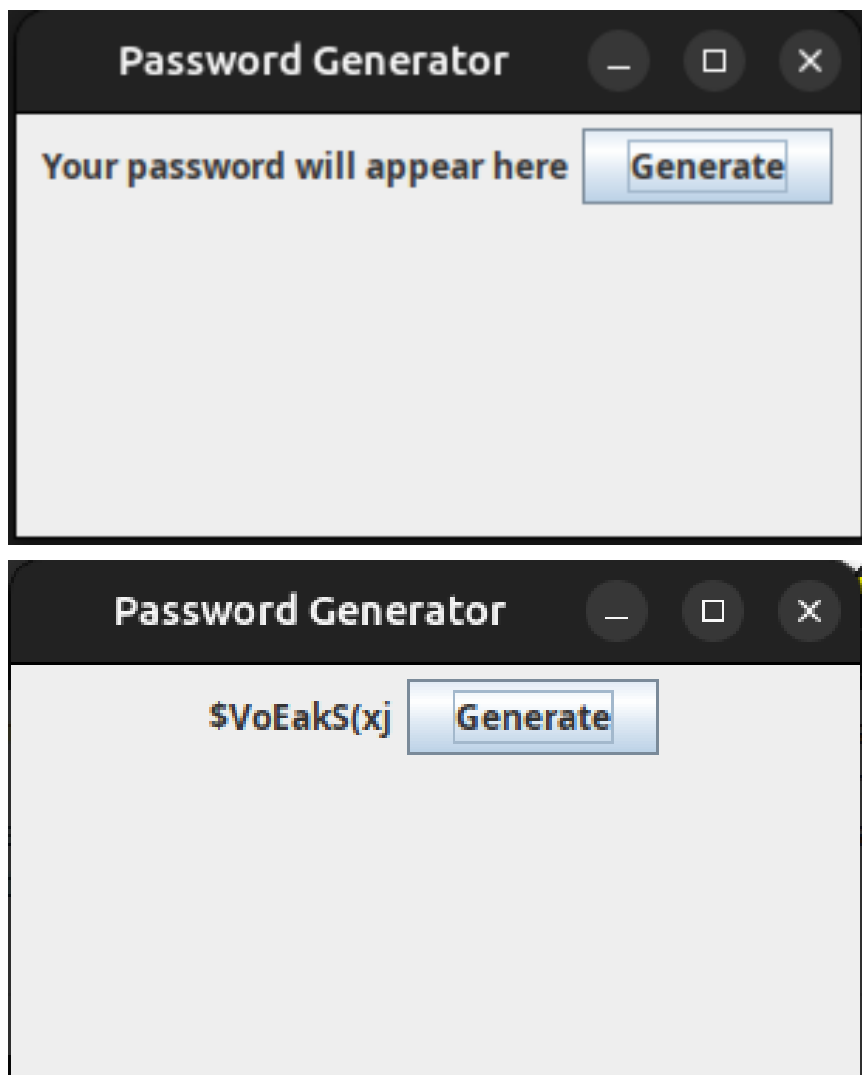
1.2 Scope The Password Generator is a Java-based application designed to generate random passwords with various characteristics such as length and inclusion of uppercase letters, lowercase letters, numbers, and special characters. The application will provide users with a graphical user interface (GUI) for easy interaction.

1.3 Definitions, Acronyms, and Abbreviations

- GUI: Graphical User Interface
- SRS: Software Requirements Specification

1.4 References No specific external references are required for this document.

1.5 Overview This document will cover the overall description of the Password Generator application, including its product perspective, functions, user characteristics, constraints, assumptions, and dependencies. It will also detail specific requirements, including external interface requirements, functional requirements, performance requirements, design constraints, attributes, and other requirements.

2. Overall Description

2.1 Product Perspective The Password Generator is a standalone application that operates independently of other systems or software. It does not have any direct dependencies on external databases or services.

2.2 Product Functions The main function of the Password Generator is to generate random passwords based on user-defined criteria, such as length and character set. Additional functions include:

•   Ability to specify password length

•   Option to include uppercase letters, lowercase letters, numbers, and special characters in the password

•   Graphical user interface for user interaction

2.3 User Characteristics The intended users of the Password Generator application are individuals or organizations in need of secure passwords for various purposes. Users are expected to have basic computer literacy and familiarity with graphical user interfaces.

2.4 General Constraints

•   The application will be developed using Java programming language and Swing library for the graphical user interface.

•   The application will run on platforms supporting Java Runtime Environment (JRE).

2.5 Assumptions and Dependencies

•   It is assumed that users have access to a computer with Java Runtime Environment installed.

•   The application does not depend on external libraries or services.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interface The user interface of the Password Generator application will consist of:

•   A text field to display the generated password
•   A button to generate a new password
•   Checkboxes or dropdown menus for selecting password criteria (length, inclusion of uppercase letters, lowercase letters, numbers, and special characters)

3.1.2 Hardware Interface The Password Generator application does not have specific hardware requirements beyond those necessary to run Java applications.

3.1.3 Software Interface The application will interact with the Java Runtime Environment (JRE) for execution.

3.1.4 Communication Interface No external communication interfaces are required for the Password Generator application.

3.2 Functional Requirements

3.2.1 Mode1 3.2.1.1 Functional Requirement 1.1: Password Generation

•   The application shall generate random passwords based on user-defined criteria.
•   The user shall be able to specify the length of the password.
•   The user shall be able to select the inclusion of uppercase letters, lowercase letters, numbers, and special characters in the password.

3.3 Performance Requirements The Password Generator application shall be capable of generating passwords within a reasonable time frame, even for longer passwords and when all character types are included. The generation process should not significantly impact system performance.

3.4 Design Constraints The design of the Password Generator application shall adhere to Java Swing GUI framework for consistency and compatibility across different platforms.

3.5 Attributes

•   **Portability:** The application shall be portable across platforms supporting Java Runtime Environment.
•   **Usability:** The user interface shall be intuitive and easy to use, requiring minimal instruction for operation.
•   **Security:** The generated passwords shall be random and secure, meeting common password strength requirements.

3.6 Other Requirements No additional requirements beyond those specified above.

Conclution:

The Software Requirements Specification (SRS) for the Password Generator application. The document covers all necessary aspects of the software, including its purpose, scope, functions, constraints, assumptions, and specific requirements.