Example Software Development Project

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# Analysis

## The problem

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## Stakeholder

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## Research

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## Essential Features

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## Hardware and Software requirements

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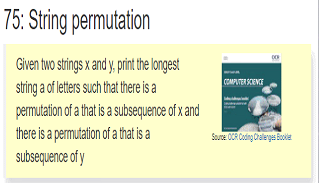
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## Success Criteria



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|  |  |  |
| --- | --- | --- |
| Number | Criteria | Justification |
| 1. | It must have a graphical user interface | The user needs to ber able to control the program with a mouse and see the responses on the screen |
| 2 | User must eba ble to type in string x |  |
| 3 | User must be able to type in string y |  |
| 4 | The program must display the longest sequence of letters that is shared by both strings |  |
| 5 | If either string is left empty, an erro message asks the suer to enter a string |  |
| 6 | If no letters or sequence of letters are shred between x or y then a message is displayed to to that effect | The user would need feedback to tell them that there are no letters shared, if it was left blank it ciuld lead to the user thinking the prgram had crashed |
| 7 | It must work on a windows 10 computer with a screen size ofd 1920 x 1080 or larger |  |
| 8 | Must have a title at the top |  |
| 9 | Must have a help button to show hints on how to use the program | The suer must have some instruction on how to use the prgram if they get stcuk, makes it easy for new users to work out how to use the program |
| 10 | User input must not be over 1024 characters |  |
| 11 | The user input must wrok with ant valid ASCII character |  |

# Design

## Decomposition

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## Structure

Spiral iterative approach

Iteration 1:

Prototype 1.1: user interface with no functionality

Prototype 1.2: user interface with user input validated

Iteration 2:

Prototype 2.1: Calculation for normal data

Prototype 2.2: Calculation for all data

Prototype 2.3: Fully working solution with help screen

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## Algorithms

Function string ValidateString(string userInput) {

// presence check

// Length check

}

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## Usability features

String overlap calculator

String X enter

Longest set of characters that match in each string

String Y enter

Calculate

HELP

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## Data structures and validation

|  |
| --- |
| ValidationResult |
| +ValidationSuccess:bool  +Message |
| ValidateUserInput(string):bool |
|  |

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## Test data

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test number | Description | Test data | Expected resuly | Success criteria |
| 1.1a | User interface | start the program | User should be able to enter in 2 strings (X and Y) and press a button (calculate). Nothing needs to happen yet. The title should also appear. | 1, 8 🡪 table above |
| 1.2a | Validate string X precence check | User enters “” for string X | Program should not crash but displays “user should enter a valid string ” as an erro message | 2, 5 |
| 1.2b | Validate string X length check | User enetrs 1024 zeros for string X | String X is acepted as a valid string |  |
| 1.2c | Validate string X length check | User enters 1025 zeros for string X | “String X is too long” message appears, program shiudl not crash |  |
| 1.2d | Validate string X precence check | User enters “” for string X | Program should not crash but displays “user should enter a valid string ” as an erro message | 2, 5 |
| 1.2e | Validate string X length check | User enetrs 1024 zeros for string X | String X is acepted as a valid string |  |
| 1.2f | Validate string X length check | User enters 1025 zeros for string X | “String X is too long” message appears, program shiudl not crash |  |
| 1.2g | Validate stirng X  Pattern check | User enters “£3.50” | “Non ACII character detected ins tring X” message appeears |  |

## Post development testing

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# Implementation

## Iteration 1

### Prototype 1.1 code

### Prototype 1.1 testing

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test number | Test data | Expected result | Actual result | Action taken |
| 1.1a | User enters name as “bob” | Greeting displayed “Hello bob” | No greeting | Fix greeting |

To fix the greeting I set the name variable Prototype 1.2 code

### Prototype 1.2 testing

## Iteration 2

### Prototype 2.1 code

### Prototype 2.1 testing

### Prototype 2.2 code

### Prototype 2.2 testing

## Iteration 3

### Prototype 3.1 code

### Prototype 3.1 testing

### Prototype 3.2 code

### Prototype 3.2testing

### Prototype 3.3 code

### Prototype 3.3 testing

# Evaluation

## Testing for function

## Testing for robustness

## Testing for usability

# Success criteria

## Further development

## Maintenance