Example Software development project

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# Analysis

## The problem

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## Stakeholders

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## Research

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## Essential features

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## Hardware and software requirements

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## Success criteria

|  |  |  |
| --- | --- | --- |
| No. | Criteria | justification |
| 1 | It must have a graphical user interface. |  |
| 2 | User must be able to type in string y |  |
| 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 error message asks the user to enter a string. |  |
| 6 | If no letters or sequence of letters are shared between x and y, a message is displayed to that effect. | This allows the user to understand that this is the case without causing an error. |
| 7 | It must work on a windows 1 computer with a screen size of 1920 x 1080 p or larger | This is the device that the client will use to run the program |
| 8 | Must have title |  |
| 9 | Must have help button |  |
| 10 | Max char limit of 1000 |  |
| 11 | The user input must except any ascii character |  |

# Design

## Decomposition

Validation

Help screen

## 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.

## Algorithms

Function presence check () {

//presence check

//length check

}

## Usability features

String overlap calculator

String X

String y

Result

Help

Help

## Data structures and validation

|  |
| --- |
| ValidationResult |
| ValidationSuccess:Bool |
|  |
| ValidateUserInput(string):bool |

## Test data

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test number | Description | Test data | Expected result | Success criteria |
| 1.1a | UI | Start the program | Should be able to enter two strings and press a button | 1 and 8 |
| 1.2a | Validate string c presence check | User enters “” for string x | Program should ask for a valid string and not crash | 2,5 |
| 1.2b | Validate string C length check | User enters 999 0 | X is accepted as valid | 2 |
| 1.2c | Validate string x Length check | User enters 1001 zeros for string x | String x is too long message is delivered | 2 |
| 1.2 d | Test the Unicode check | User enters 😊 | The program accepts it as valid. | 2 |
| 1.2 e |  |  |  |  |
| 1.2 f | Validate string y presence check | User enters “” for string x | Program should ask for a valid string and not crash | 2,5 |
|  |  |  |  |  |

## Post development testing

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# Implementation

## Iteration 1

### Prototype 1.1

### Prototype 1.1 testing

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

### Prototype 1.2

### Prototype 1.2 testing

## Iteration 2

### Prototype 2.1

### Prototype 2.1 testing

### Prototype 2.2

### Prototype 2.2 testing

## Iteration 3

### Prototype 3.1

### Prototype 3.1 testing

### Prototype 3.2

### Prototype 3.2 testing

### Prototype 3.3 testing

# Evaluation

## Testing for function

## Testing for robustness

## Testing for usability

## Success Criteria

## Further development