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# Task 1

## 1.a) Evaluation of API

API Definition

Advantages

Types of API

One API- Good points and bad points

## 1.b) Software Development Lifecycle

SDLC Definition

SDLC Phases

SDLC Models (Waterfall and 2 other with Images)- Definition, Advantages, Disadvantages

# Task 2

## 2.a) Language Constructs

A plan of the program which explains the language constructs which are to be used within the program.

*Describe the application will be developed using C# on Visual Studio 2017 IDE. Describe C# language constructs.*

### Data Types

### Variables

### Constants

### Conditional Statement

### Loops

### Each loop description and syntax and example

### Arithmetic Operators

### Relational Operators

## 2.b) Design

A design for the computer program which meets the client brief using flow design/algorithm and pseudo code.

## Flowchart

*Description*

### Area Operation

### Perimeter Operation

### Fibonacci Series

### Even or Odd

### GCD & LCM

## Pseudo Code

*Description*

### Area Operation

### Perimeter Operation

### Fibonacci Series

### Even or Odd

**PROCEDURE**  **EVENODD**

Read Variable

**IF( )**

THEN

Print result

**ELSE**

Print result

**ENDIF**

**END**

### GCD & LCM

)Print result

ENDIF

ELSE IF( Radiobutton for ‘-’ selected)

THEN result= Num1-Num2

Print result

ENDIF

ELSE IF( Radiobutton for ‘\*’ selected)

THEN result= Num1\*Num2

Print result

ENDIF

ELSE IF( Radiobutton for ‘/’ selected)

THEN result= Num1/Num2

Print result

ENDIF

ELSE IF( Radiobutton for ‘%’ selected)

THEN result= Num1%Num2

Print result

END

Print result

ENDIF

ELSE IF( Radiobutton for ‘-’ selected)

THEN result= Num1-Num2

Print result

ENDIF

ELSE IF( Radiobutton for ‘\*’ selected)

THEN result= Num1\*Num2

Print result

ENDIF

ELSE IF( Radiobutton for ‘/’ selected)

THEN result= Num1/Num2

Print result

ENDIF

ELSE IF( Radiobutton for ‘%’ selected)

THEN result= Num1%Num2

Print result

ENDIF

* PROGRAM MathOperation:

Read Variables Num1,Num2

IF( Radiobutton for ‘+’ selected)

THEN result= Num1+Num2

# Task 3 – Develop Program

**Evidence on CD.**

# Task 4 -Testing

## 4.a) Testing

*Describe [Unit Testing, Integration, System, Acceptance Testing]*

*Specify you performed Unit and Integration Testing*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **API Name** | **Version** | **Author** | **Tested By** | **Testing Date** |
|  | **1.0** | *Yourname* | *Yourname* |  |

**Test cases**

|  |  |  |
| --- | --- | --- |
| **TestId** | : | **T2001** |
| **ModuleNo** | : | **T2-EvenOdd** |
| **TestName** | : | EvenOdd- Valid\_Odd\_Input |
| **Test Scenario/ Steps** | : | 1. Open Form # 2. Enter number in the textbox txtno 3. Click button “Check Even/Odd”. |
| **Test Input** | : | 7 |
| **Expected Result** | : | Message should display “7 is Odd” |
| **Actual Result** | : | Message “7 is Odd” |
| **Pass / Fail** | : | **PASS** |
| **Screenshot** | : | C:\Users\Abdullah\AppData\Local\Microsoft\Windows\INetCache\Content.Word\yulgvug.png |

|  |  |  |
| --- | --- | --- |
| **TestId** | : | **T2002** |
| **ModuleNo** | : | **T2-EvenOdd** |
| **TestName** | : | EvenOdd- Valid\_Even\_Input |
| **Test Scenario/ Steps** | : | 1. Open Form # 2. Enter even number in the textbox txtno 3. Click button “Check Even/Odd”. |
| **Test Input** | : | 8 |
| **Expected Result** | : | Message should display “8 is even” |
| **Actual Result** | : | Message “8 is even” |
| **Pass / Fail** | : | **PASS** |
| **Screenshot** | : | C:\Users\Abdullah\AppData\Local\Microsoft\Windows\INetCache\Content.Word\yulgvug.png |

..

|  |  |  |
| --- | --- | --- |
| **TestId** | : | **T4003** |
| **ModuleNo** | : | **T4-GCD-LCM** |
| **TestName** | : | GCD- InValid\_ Input |
| **Test Scenario/ Steps** | : | 1. Open Form # 2. Enter A in one of the textbox txtno 3. Click button “GCD/LCM”. |
| **Test Input** | : | 4 A |
| **Expected Result** | : | Error Message should display “Enter correct format” |
| **Actual Result** | : | System exited with errors |
| **Pass / Fail** | : | **FAIL** |
| **Screenshot** | : |  |

## 4.b) Analyze Test Results

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Test**  **No** | **Module**  **No** | **Module**  **Name** | **Test**  **Input**  **Data** | **Expected Result** | **Actual Result** | **Pass/**  **Fail** |
| 1 | T1001 | T1-Multiplication | Multiplication Table- Valid\_Input | 6 | Multiplication table | Multiplication table | PASS |
| 2 | T4003 | T4-GCD-LCM | GCD-LCM InValid\_Input | A | Error Message | System Crash | FAIL |
| 3 | T2001 | T2-EvenOdd | EvenOdd- Valid\_Odd\_Input |  |  |  |  |
| 4 | T2002 | T2-EvenOdd | EvenOdd- Valid\_Even\_Input |  |  |  |  |

***Check if any Tests fail, Purposely fail any 1 test case.***

***Specify:***

TestNo [T4003] has failed because input error handling is not performed.

The error was handled by try catch block to handle FormatException and test was performed again.

|  |  |  |
| --- | --- | --- |
| **TestId** | : | **T4003** |
| **ModuleNo** | : | **T4-GCD-LCM** |
| **TestName** | : | GCD- InValid\_ Input |
| **Test Scenario/ Steps** | : | 1. Open Form # 2. Enter A in one of the textbox txtno 3. Click button “GCD/LCM”. |
| **Test Input** | : | 4 A |
| **Expected Result** | : | Error Message should display “Enter correct format” |
| **Actual Result** | : | Error Message displayed “Enter correct format” |
| **Pass / Fail** | : | **PASS** |
| **Screenshot** | : |  |

**Testing is complete. All tests have passed. The version 1.1 is ready for release to the client.**

## 4.c) Recommend Improvements

New features will be added with some more functionality in the future as the

versions Update.

* If any errors occur ….
* For ease of use, ….
* … updated ……

# References