**Test Plans for programming**

1. **Definition**“A test plan is a detailed document that outlines the test strategy, Testing objectives, resources (manpower, software, hardware) required for testing, test schedule, Test Estimation and test deliverables.” (*How to Create a Test Plan (with Example))*

Test planning is a very important, essential, and crucial part of the test life cycle. A well-planned and executed test ensures the good quality a program. In simple words, Test Planning is planning everything involved in testing and Test Plan is a document where test planning is written.

1. **Why do you need a test plan?**
2. To let other people have an overview of the program
3. To show other people how the program works
4. To help programmer see if the program is successful and make sure if it meets the clients’ needs
5. **Basic elements of a programming test plan**

**Case number** - A comprehensive test plan should contain at least 3 cases

**Input** - Data entered by the users

**Expected output** - Outcomes the users anticipate

**Actual output** - Outcomes displayed

**Did the test pass?** – Compare the expected outputs with the corresponding actual outputs, the test pass if they are the same.

Otherwise, the test did not pass.

1. **Test Plan example:**

A good test plan should be comprehensive. This means you should have a few test cases that test when the input is out of range, division by 0, etc. For example:

Input validation requirements: Display an error message if the user enters a number outside the range of 1 through 4 when selecting an item from the menu. No negative values accepted for the circle’s radius. You should add at least three cases:

Case 1: Check program if user enters a number out of range: 0

Case 2: Check program if user enters a number out of range: 5

Case 3: Check program if user enters a negative radius: -2

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| --- | --- | --- | --- | --- |
| **Cases** | **Input** | **Expected Output** | **Actual Output** | **Did the Test Pass?** |
| **Case 1** | In-patient or Out-patient? (I or O): i |  |  | Y |
| Number of days in the hospital: 21 |  |  |
| Daily room rate: $25 |  |  |
| Medication charges: $16 |  |  |
| Lab fees and other service charges: $71 |  |  |
|  | The total charges are $612  Programmer: Kate Smiths  CMSC140 Project 4  Duedate: 09/29/2019 | The total charges are $612  Programmer: Kate Smiths  CMSC140 Project 4  Duedate: 09/29/2019 |
| **Case 2** | In-patient or Out-patient? (I or O): u | (Ask user to enter again) |  | Y |
| Please enter I or O: o |  |  |
| Medication charges: $0 |  |  |
| Lab fees and other service charges: $-9 | These charges must be zero or more. | These charges must be zero or more. |
| Please re-enter: $91 | The total charges are $91 | The total charges are $91 |
|  | Programmer: Kate Smiths | Programmer: Kate Smiths |
|  | CMSC140 Project 4 | CMSC140 Project 4 |
|  | Duedate: 09/29/2019 | Duedate: 09/29/2019 |
| **Case 3** | In-patient or Out-patient? (I or O): 8 | (Ask user to enter again) |  | Y |
| Please enter I or O: I |  |  |
| Numbers of days in the hospital: -12 | Days in the hospital must be zero or more. | Days in the hospital must be zero or more. |
| Please re-enter:12 |  |  |
| Daily room rate: $-8 | Room rate must be zero or more. | Room rate must be zero or more. |
| Please re-enter: $85 |  |  |
| Medication charges: $-6 | Medication charges must be zero or more. | Medication charges must be zero or more. |
| Please re-enter: $6 |  |  |
| Lab fees and other service charges: $-21 | These charges must be zero or more. | These charges must be zero or more. |
| Please re-enter: $21 | The total charges are $1047 | The total charges are $1047 |
|  | Programmer: Kate Smiths | Programmer: Kate Smiths |
|  | CMSC140 Project 4 | CMSC140 Project 4 |
|  | Duedate: 09/29/2019 | Duedate: 09/29/2019 |

**A comprehensive test plan example:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cases** | **Input** | **Expected Output** | **Actual Output** | **Did the Test Pass?** |
| **Case 1** | In-patient or Out-patient? (I or O): i |  |  | Y |
| Number of days in the hospital: 21 |  |  |
| Daily room rate: $25 |  |  |
| Medication charges: $16 |  |  |
| Lab fees and other service charges: $71 | The total charges are $612 | The total charges are $612 |
| **Case 2** | In-patient or Out-patient? (I or O): u | You should enter I, I, o or O |  | Y |
| Please re-enter: o |  |  |
| Medication charges: $0 |  |  |
| Lab fees and other service charges: $-9 | These charges must be zero or more. | These charges must be zero or more. |
| Please re-enter: $91 | The total charges are $91 | The total charges are $91 |
| **Case 3** | In-patient or Out-patient? (I or O): 8 | You should enter I, I, o or O |  | Y |
| Please re-enter: I |  |  |
| Numbers of days in the hospital: -12 | Days in the hospital must be zero or more. | Days in the hospital must be zero or more. |
| Please re-enter:12 |  |  |
| Daily room rate: $-8 | Room rate must be zero or more. | Room rate must be zero or more. |
| Please re-enter: $85 |  |  |
| Medication charges: $-6 | Medication charges must be zero or more. | Medication charges must be zero or more. |
| Please re-enter: $6 |  |  |
| Lab fees and other service charges: $-21 | These charges must be zero or more. | These charges must be zero or more. |
| Please re-enter: $21 | The total charges are $1047 | The total charges are $1047 |

References

(n.d.). How to Create a Test Plan (with Example). Retrieved from https://www.guru99.com/what-everybody-ought-to-know-about-test-planing.html