Test Plan

CMSC115

Chapter 2, Project 1

October 30, 2024

**Program Goals & Objectives**

The purpose of this program is to calculate the gratuity and total amount based on the user’s input of the subtotal and the gratuity rate.

**Program Functional Requirements**

1. The program should prompt the user to enter the subtotal and a gratuity rate.

2. The user should be able to enter the subtotal and gratuity rate as numerical values.

3. The program should calculate the gratuity by multiplying the subtotal by the gratuity rate divided by 100.

4. The program should calculate the total by adding the subtotal and gratuity.

5. The program should display the calculated gratuity and total amount to the user.

**Program Pseudocode**

START

Prompt user to "Enter the subtotal and a gratuity rate: "

Read subtotal and gratuityRate

gratuity = subtotal \* (gratuityRate / 100)

total = subtotal + gratuity

Display "The gratuity is $" + gratuity + " and total is $" + total

END

**Program Flowchart**

**A diagram of a graph

Description automatically generated**

**Table 1 – Traceability Matrix**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case | Input/Output | Expected Result | Actual Result | Outcome  (Pass/Fail) |
| 1a | The user is prompted to enter the subtotal and a gratuity rate | A message prompting the user appears on the screen: “Enter the subtotal and a gratuity rate: “ | A message prompting the user appears on the screen: “Enter the subtotal and a gratuity rate: “ | Pass |
| 2a | User enters 80 and 20 for subtotal and gratuity rate respectively | A message with the calculation appears on the screen: “The gratuity is $16.0 and total is $96.0” | A message with the calculation appears on the screen: “The gratuity is $16.0 and total is $96.0” | Pass |
| 3a | User enters non-numeric values for subtotal and gratuity: “fifty, twenty” | Program should handle invalid input | Program crashes with an InputMistmatchException | Fail |