CSCE 2004 – Programming Foundations I Programming Project Report

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Academic Integrity Statement: I pledge that I have neither given nor received unauthorized help on this programming assignment.

For this programming assignment, we were tasked with learning how loops work. In the assignment, we asked the user to input which coffee shop area they would want and how much rent it would be. The more expensive places cost more; however, they also drew in more customers. After the user inputs what location they want, a simulation for 5 weeks will be run and the user will be returned on whether or not Donna made enough to keep her coffee shop running. For error handling, we had to make sure the user didn't input a number that was less than 0 or greater than 3.

The design required using a while loop to check for errors, a for loop to loop through every week, and a do while loop to simulate a user buying a coffee. I also had to use the math library to get the rand function so that way a random number of customers would be generated based on what location the user chose.

The first thing I did was initialize my variables for selecting the coffee shop's location. After this, I printed to the screen what options were available to the user and received what option the user chose. After using a while loop to check for user error on the input, I moved on to simulating each week. I started with initializing more variables and then used a for loop to simulate each week. In the for loop there is a do-while loop that tracks a coffee purchase for each customer that went in that week. Finally, I printed to the screen the stats from each week and whether or not Donna made enough to keep her coffee shop running.

Results for option 1)

```
Where would you like your coffee shop

        1) $250/month, Coffee truck
        2) $500/month, In a retail store
        3) $750/month, A shop in the downtown area

Which location would you like: 1

Week    Customers       Earnings        Expenses        Profits         Total Profits
1       $164            $820            $578            $242            $242
2       $137            $685            $524            $161            $403
3       $50             $250            $350            $-100           $303
4       $16             $80             $282            $-202           $101
5       $126            $630            $502            $128            $229

Donna made $229 which is less the minimum wage so she will have to close her shop

...Program finished with exit code 0
Press ENTER to exit console.
```

Results for option 2)

```
Where would you like your coffee shop

        1) $250/month, Coffee truck
        2) $500/month, In a retail store
        3) $750/month, A shop in the downtown area

Which location would you like: 2

Week    Customers       Earnings        Expenses        Profits         Total Profits
1       $20             $100            $540            $-440           $-440
2       $194            $970            $888            $82             $-358
3       $278            $1390           $1056           $334            $-24
4       $398            $1990           $1296           $694            $670
5       $388            $1940           $1276           $664            $1334

Donna made $1334 which is less the minimum wage so she will have to close her shop

...Program finished with exit code 0
Press ENTER to exit console.
```

Results for option 3)

```
Where would you like your coffee shop

        1) $250/month, Coffee truck
        2) $500/month, In a retail store
        3) $750/month, A shop in the downtown area

Which location would you like: 3

Week    Customers       Earnings        Expenses        Profits         Total Profits
1       $645            $3225           $2040           $1185           $1185
2       $612            $3060           $1974           $1086           $2271
3       $429            $2145           $1608           $537            $2808
4       $546            $2730           $1842           $888            $3696
5       $78             $390            $906            $-516           $3180

Donna made $3180 so she can keep her shop open

...Program finished with exit code 0
Press ENTER to exit console.
```

This project was a success and worked well. I accidentally deleted the project the first time I made it, so I can assure you I won't make that mistake again

as I had to redo the entire project. It took me an hour to complete the first time and about 30 minutes the second time.