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BSCS – C204

Midterm Lab Task 2

Using Functions

Problem 1:

Create an $n \times n$ Multiplication table using **Nested FOR Loop**. The user must enter the number of rows and columns that will be displayed in the Table.

Sample Output 1

```
How many rows:10
How many cols:10
      Multiplication Table

  1   2   3   4   5   6   7   8   9  10
  2   4   6   8  10  12  14  16  18  20
  3   6   9  12  15  18  21  24  27  30
  4   8  12  16  20  24  28  32  36  40
  5  10  15  20  25  30  35  40  45  50
  6  12  18  24  30  36  42  48  54  60
  7  14  21  28  35  42  49  56  63  70
  8  16  24  32  40  48  56  64  72  80
  9  18  27  36  45  54  63  72  81  90
 10  20  30  40  50  60  70  80  90 100
```

Sample Output 2.

```
How many rows:3
How many cols:5
      Multiplication Table

  1   2   3   4   5
  2   4   6   8  10
  3   6   9  12  15
```

Source Code:

```
m = int(input("How many rows: "))
p = int(input("How many columns: "))
print()
print("      Multiplication Table      ")
print()
for item in range(1, m + 1):
    for x in range(1, p + 1):
        print(f"{item*x}", end="\t")
    print()
```

Sample Output:

```
How many rows: 10
How many columns: 10

      Multiplication Table

1  2  3  4  5  6  7  8  9  10
2  4  6  8  10 12 14 16 18 20
3  6  9  12 15 18 21 24 27 30
4  8  12 16 20 24 28 32 36 40
5  10 15 20 25 30 35 40 45 50
6  12 18 24 30 36 42 48 54 60
7  14 21 28 35 42 49 56 63 70
8  16 24 32 40 48 56 64 72 80
9  18 27 36 45 54 63 72 81 90
10 20 30 40 50 60 70 80 90 100

Process finished with exit code 0
```

```
How many rows: 5
How many columns: 5

      Multiplication Table

1  2  3  4  5
2  4  6  8  10
3  6  9  12 15
4  8  12 16 20
5  10 15 20 25

Process finished with exit code 0
```

Problem 2:

Problem 2. Create a bank program that will allow the user to perform the ff: Use Functions as necessary

```
*****
      ABCCDE ATM
*****
1.Show Balance
2.Deposit
3.Withdraw
4.Exit
*****
```

```
Enter your choice (1-4): 1
*****
Your balance is $0.00
*****
```

```
*****
Enter your choice (1-4): 2
*****
Enter an amount to be deposited: 1000
*****
```

```
Enter your choice (1-4): 1
*****
Your balance is $1000.00
*****
```

```
Enter your choice (1-4): 3
*****
Enter amount to be withdrawn: 250
*****
```

```
*****
Enter your choice (1-4): 1
*****
Your balance is $750.00
*****
```

Source Code:

1 usage

```
def show_balance(balance):  
    print(f"Your balance is ${balance}")
```

1 usage

```
def deposit(balance):  
    amount = float(input("Enter an amount to be deposited: "))  
    balance += amount  
    print(f"Deposited: ${amount}")  
    return balance
```

1 usage

```
def withdraw(balance):  
    amount = float(input("Enter an amount to be withdrawn: "))  
    if amount <= balance:  
        balance -= amount  
        print(f"Withdrew: ${amount}")  
    else:  
        print("Insufficient Balance!")  
    return balance
```

```

1 usage
def main_menu():
    balance = 0.00
    while True:
        print("\n")
        print("*****")
        print("          ABCDE ATM          ")
        print("*****")
        print("1. Show Balance")
        print("2. Deposit")
        print("3. Withdraw")
        print("4. Exit")
        print("*****")

        item = int(input("Enter your choice (1-4): "))

        if item == 1:
            show_balance(balance)
        elif item == 2:
            balance = deposit(balance)
        elif item == 3:
            balance = withdraw(balance)
        elif item == 4:
            print("Thank you for choosing ABCDE ATM")
            break
        else:
            print("Invalid Output (1-4)")

main_menu()

```

Sample Output:

```

*****
          ABCDE ATM
*****
1. Show Balance
2. Deposit
3. Withdraw
4. Exit
*****
Enter your choice (1-4): |

```

```
*****
      ABCDE ATM
*****
1. Show Balance
2. Deposit
3. Withdraw
4. Exit
*****
Enter your choice (1-4): 2
Enter an amount to be deposited: 300
Deposited: $300.0
```

```
*****
      ABCDE ATM
*****
1. Show Balance
2. Deposit
3. Withdraw
4. Exit
*****
Enter your choice (1-4): 3
Enter an amount to be withdrawn: 200
Withdrew: $200.0
```

```
*****
      ABCDE ATM
*****
1. Show Balance
2. Deposit
3. Withdraw
4. Exit
*****
Enter your choice (1-4): 3
Enter an amount to be withdrawn: 200
Insufficient Balance!
```

ABCDE ATM

1. Show Balance

2. Deposit

3. Withdraw

4. Exit

Enter your choice (1-4): 4

Thank you for choosing ABCDE ATM