# Module 10:Modularisation and functions

**SUMMATIVE ASSESSMENT [ Add to the lecturer guide]**

**8. Basic Calculator**

#declare a function to add numbers

def add(x,y):

    answer=(x+y)

    return answer

#declare a function to subtract numbers

def subtract(x,y):

    answer=(x-y)

    return answer

#declare a function to multiply numbers

def multiply(x,y):

    answer=(x\*y)

    return answer

#declare a function to divide numbers

def divide(x,y):

    answer=(x/y)

    return answer

#initialize the variables

number\_1=0

number\_2=0

result=0

#error handling for incorrect number entry

try:

    print("Enter the first number")

    number\_1=int(input())

    print("Enter the first number")

    number\_2=int(input())

    #error handling for incorrect operator entry

    try:

        print("Enter the operation +,-,\*,/ ")

        op=input()

        if op=="+" or op=="-" or op=="/"or op=="\*":

            if op=='+':

                #calling the add function

                result=add(int(number\_1),int(number\_2))

                #displaying the answer

                print(f"{number\_1} + {number\_2} = {result}")

            elif op=='-':

                result=subtract(int(number\_1),int(number\_2))

                print(result)

            elif op=='\*':

                result=multiply(int(number\_1),int(number\_2))

                print(result)

            else:

                result=divide(int(number\_1),int(number\_2))

                print(result)

        else:

            print(" Invalid operator type entry ")

    except:

        print("Error processing")

except:

    print("The value entered was not a number")

**(20)**

9. Osman’s Supply Store Point of Sale.

import datetime

now=datetime.datetime.now()

date\_time = now.strftime("%m/%d/%Y, %H:%M:%S")

amountPayable=0.0

discountPerc=0

type\_of\_sale=input("Enter the type of purchase. 'CS' for credit sales and 'CR' for credit sales \n").upper()

while type\_of\_sale=='CS' or type\_of\_sale=="CR":

    quantity=int(input("Pease enter the quantity \t"))

    unitPrice=float(input("Pease enter the unitPrice \t"))

    if type\_of\_sale=="CR":

        customerID=str(input("Please enter the customerID \t"))

        customerName=str(input("Please enter the customerName \t"))

        customerSurname=str(input("Please enter the customerSurname \t"))

        productID=str(input("Pease enter the productID \t"))

        productName=str(input("Pease enter the productName \t"))

        amountPayable=quantity\*unitPrice

        fp = open("sales.txt", 'a')

        fp.write("---------------------------------------------------\n")

        fp.write(f"Date and Time:               \t {date\_time} \n")

        fp.write(f"# of items purchased:        \t {quantity} \n")

        fp.write(f"The unit price is            \t: R{unitPrice:.2f} \n")

        fp.write(f"The product name is          \t: {productName}\n")

        fp.write(f"The total amount is          \t: R{amountPayable:.2f} \n")

        fp.write("===========Thank you for shopping=====================" )

        fp.write("-----------------------------------------------------")

        break

    elif type\_of\_sale=="CS":

        customerID=str(input("Please enter the customerID \t"))

        customerName=str(input("Please enter the customerName \t"))

        customerSurname=str(input("Please enter the customerSurname \t"))

        productID=str(input("Pease enter the productID \t"))

        productName=str(input("Pease enter the productName \t"))

        try:

            disc=int(input("Please enter the given discount \t"))

            if disc<=25:

                amountPayable=quantity\*unitPrice

                discount=amountPayable\* disc /100

                amount=amountPayable-discount

                fp = open("sales.txt", 'a')

                fp.write("-----------------------------------------------------\n")

                fp.writelines(f"Date and Time: \t {date\_time} \n")

                fp.writelines(f"# of items purchased:     \t: {quantity} \n")

                fp.writelines(f"The unit price is         \t: R{unitPrice:.2f}\n")

                fp.writelines(f"discount @{disc} % is     \t: R{discount:.2f}\n")

                fp.writelines(f"Customer name             \t: {customerName} \n")

                fp.writelines(f"Customer surname          \t: {customerSurname}\n")

                fp.writelines(f"Product Name              \t: {productName}\n")

                fp.writelines(f"Total amount due is       \t: R{amount:.2f} \n")

                fp.write("===========Thank you for shopping=====================" )

                fp.write("-----------------------------------------------------")

                fp.close()

                break

            else:

                print("The discount should not be greater than 25%")

        except:

            print("You are not allowed to do the processing")

else:

    print("Incorrect type of sale")

(25)

**Total : 67 marks**