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Computer Science Practical File

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Class:- XI- A

Roll no. :- 25

Submitted to:- Mrs. Kalpana Gurumani

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Hence, I would like to thank all the above mentioned people once again.

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Ques1. Write a program of biodata.

➢ CODE

```
uName = input("Enter Your Name: ")
fName = input("Enter Your Father's Name: ")
DOB = input("Enter Your Date Of Birth: ")
MobileNo = input("Enter Your Mobile Number: ")
Address = input("Enter Your Residential Address: ")

print(f"\n"
    f"User Name         : {uName}\n"
    f"Father's Name     : {fName}\n"
    f"Date Of Birth     : {DOB}\n"
    f"Contact Number : {MobileNo}\n"
    f"Address           : {Address}"
    )
```

➢ OUTPUT

```
Enter Your Name: Kali Singh
Enter Your Father's Name: Nirbhay Singh
Enter Your Date Of Birth: 25 August 2005
Enter Your Mobile Number: 89XXX47X70
Enter Your Residential Address: 123, XYZ Colony, Gurugram

User Name         : Kali Singh
Father's Name     : Nirbhay Singh
Date Of Birth     : 25 August 2005
Contact Number : 89XXX47X70
Address           : 123, XYZ Colony, Gurugram
```

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Ques2. Write a program to calculate compound interest

➢ CODE

```
# Inputs
Principle = int(input('Enter The Principle Amount :- '))
Rate = int(input('Enter Rate Of Interest :- '))
Time = int(input('For How Many Years Money Is Deposited For:- '))
n = int(input('How Many Times Amount Is Compounded Per Year :- '))

# Main Calculation
compRate = Rate/(100*n)
SI = (Principle*Rate*Time)/100
CI = Principle*(1 + compRate)**(Time*n) - Principle

print(f'Simple Interest On Rs.{Principle} For {Time} months When Compounded :- {SI}\n'
      f'Compound Interest On Rs.{Principle} For {Time} months :- {round(CI, 2)}\n'
      f'Amount With Compound Interest:- {round(Principle+CI, 2)}')
```

➢ OUTPUT

```
Enter The Principle Amount :- 100000
Enter Rate Of Interest :- 15
For How Many Years Money Is Deposited For:- 5
How Many Times Amount Is Compounded Per Year :- 3
Simple Interest On Rs.100000 For 5 months When Compounded :- 75000.0
Compound Interest On Rs.100000 For 5 months :- 107892.82
Amount With Compound Interest:- 207892.82
```

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Ques3. Write a program to calculate student's grade

➢ CODE

```
uName = input("Enter The Name :- ")
Physics = float(input('Physics Marks :- '))
Chemistry = float(input('Chemistry Marks :- '))
Maths = float(input('Maths Marks :- '))
CS = float(input('CS Marks :- '))
English = float(input('English Marks :- '))

# ======== Main Calculation ========
Total = Physics + Chemistry + Maths + CS + English
Percentage = round(Total / 5, 2)
CGPA = round(Percentage / 10, 4)
if Percentage > 90:
    Grade = 'A1'
elif 80 < Percentage <= 90:
    Grade = 'A2'
elif 70 < Percentage <= 80:
    Grade = 'B1'
elif 60 < Percentage <= 70:
    Grade = 'B2'
elif 50 < Percentage <= 60:
    Grade = 'C1'
elif 40 < Percentage <= 50:
    Grade = 'C2'
elif 30 < Percentage <= 40:
    Grade = 'D1'
elif 20 < Percentage <= 30:
    Grade = 'D2'
elif 10 < Percentage <= 20:
    Grade = 'E1'
elif Percentage <= 10:
    Grade = 'E2'
```

```
print(f"\n"
      f'Student Name   : {uName}\n"
      f'Total Marks     : {Total}\n"
      f'Percentage      : {Percentage}%\n"
      f'CGPA            : {CGPA}\n"
      f'Grade           : {Grade}\n"
     )
```

➢ OUTPUT

```
Enter The Name :- Kali Singh
Physics Marks :- 80
Chemistry Marks :- 90
Maths Marks :- 98
CS Marks :- 78
English Marks :- 98

Student Name   : Kali Singh
Total Marks     : 444.0
Percentage      : 88.8%
CGPA            : 8.88
Grade           : A2
```

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Ques4. Write a menu driven program for mathematical calculator

➢ CODE

```
try:
  uNum1 = int(input('Enter First Number(a):- '))
  uNum2 = int(input('Enter Second Number(b):- '))
  operation = input("Enter Operation\n'+' For Addition\n'-' For Subtraction\n"
                    "'x' or '*' For Multiplication\n'/' For Division :- ")

  if operation == '+':
    result = uNum1 + uNum2
    print(result)

  elif operation == '-':
    while True:
      choice = input('For a-b, Enter 1\nFor b-a, Enter 2\nEnter 3 To Exit: ')
      if choice == '1':
        result = uNum1 - uNum2
        print(result)
      elif choice == '2':
        result = uNum2 - uNum1
        print(result)
      elif choice == '3':
        exit()
  elif operation == '/':
    while True:
      choice = input('For a/b, Enter 1\nFor b/a, Enter 2\nEnter 3 To Exit: ')
      if choice == '1':
        if uNum2 != 0:
          result = uNum1 / uNum2
          print(result)
        else:
          print('Not Defined')
      elif choice == '2':
        if uNum1 != 0:
          result = uNum2 / uNum1
          print(result)
        else:
          print('Not Defined')
      elif choice == '3':
        exit()

except Exception:
  print(f'Provided Input Is Not An Integer')
```

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➢ CODE

```
elif operation in ('x', '*'):
    result = uNum1 * uNum2
    print(result)

elif operation == '/':
    while True:
        choice = input('For a/b, Enter 1\nFor b/a, Enter 2\nEnter 3 To Exit: ')
        if choice == '1':
            if uNum2 != 0:
                result = uNum1 / uNum2
                print(result)
            else:
                print('Not Defined')
        elif choice == '2':
            if uNum1 != 0:
                result = uNum2 / uNum1
                print(result)
```

➢ OUTPUT

```
Enter First Number(a):- 20
Enter Second Number(b):- 0
Enter Operation
'+' For Addition
'-' For Subtraction
'x' or '*' For Multiplication
'/' For Division :- /
For a/b, Enter 1
For b/a, Enter 2
Enter 3 To Exit: 1
Not Defined
For a/b, Enter 1
For b/a, Enter 2
Enter 3 To Exit: 2
0.0
For a/b, Enter 1
For b/a, Enter 2
Enter 3 To Exit: 3
```

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Ques5. Write a program for built in string functions

➢ CODE

```
char = input('Enter A Character: ')

while len(char) > 1:
   char = input('Enter Single Character Only: ')

if char.isspace():
   print('Whitespace')
elif char.isdigit():
   print('Digit')
elif char.islower():
   print('LowerCase Alphabet')
elif char.isupper():
   print('UpperCase Alphabet')
elif char.isprintable():
   print('Special Symbol')
```

➢ OUTPUT

```
Enter A Character: A
UpperCase Alphabet


Enter A Character: 1
Digit


Enter A Character: d2
Enter Single Character Only: d
LowerCase Alphabet


Enter A Character: !
Special Symbol
```

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Ques6. Write a program of nested if else with built in string functions.

➢ CODE

```
String = input('Enter A String: ')

if len(String) == 1:
    if String.isspace():
        print('Whitespace')
    elif String.isdigit():
        print('Digit')
    elif String.islower():
        print('LowerCase Alphabet')
    elif String.isupper():
        print('UpperCase Alphabet')
    elif String.isprintable():
        print('Special Symbol')
else:
    if String[0].isspace():
        if String.isspace():
            print('Multiple Whitespaces')
        else:
            print('Arbitrary String With Space At 0')
    else:
        if String.isdigit():
            print('Numerals')
        elif String.istitle():
            if String.isalpha():
                print('Arbitrary String With Capital At 0')
            elif String.isalnum():
                print('Arbitrary String With Capital At 0 And Numeral(s)')
        elif String.isalpha():
            print('Arbitrary String')
        elif String.isalnum():
            print('Arbitrary String With Numeral(s)')
        elif String.isprintable():
            print('Arbitrary String With Special Symbols')
```

➢ OUTPUT

```
Enter A String: as12!
Arbitrary String With Special Symbols

Enter A String: as12
Arbitrary String With Numeral(s)

Enter A String: As123
Arbitrary String With Capital At 0 And Numeral(s)
```

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Ques7. Write a program of nested if-else for a pattern

- **CODE**

```
for i in range(5, 0, -1):
    print(' ' * abs(i - 5), end='')
    for j in range(i, 0, -1):
        print("@", end='')
    print('\n', end='')
```

- **OUTPUT**

```
@ @ @ @ @
 @ @ @ @
  @ @ @
   @ @
    @
```

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Ques8. Write a program to find the arithmetic mean

➢ CODE

```
numList = [1, 2, 3, 4, 5, 6, 7, 8, 9, 0]
print('Use [] At Start And End')

uList = list(eval(input('Enter The List: ')))
totalElements = len(uList)
sumOfNum = 0

for i in uList:
   if type(i) != int:
      List = list(eval(input('Enter The List Again: ')))

for num in uList:
   sumOfNum += num

Mean = sumOfNum / totalElements

print(Mean)
```

➢ OUTPUT

```
Use [] At Start And End
Enter The List: [1,4,7,11,15,19,23]
11.428571428571429
```

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Ques9. Write a menu driven program to perform various list operations

➢ CODE

```
stdList = [['Kali', '12', 439]]
run = True

while run:
    print("1: Add Student Details\n"
          "2: Show Student Details\n"
          "3: Modify Details\n"
          "4: Delete Detail From Given Position\n"
          "5: Delete Detail With Given Info")
    choice = int(input(f"Enter The Choice: "))

    if choice == 1:
        name = input("Enter Student Name: ")
        grade = input("Enter Student Class: ")
        marks = eval(input("Enter Student Marks: "))
        stdList.append([name, grade, marks])\

    if choice == 2:
        if len(stdList) > 0:
            print(f"\n{stdList}\n")
        else:
            print('No Information Available!')\

    if choice == 3:
        print("1: Change Name\n"
              "2: Change Class\n"
              "3: Change Marks")
        posCh = int(input(f"Position Of Details:"))
        inpCh = int(input(f"Enter The Choice: "))
        stdList[posCh][inpCh - 1] = input("Enter The New Detail: ")
```

```
    if choice == 4:
        posChoice = int(input(f"Position Of Details:"))
        if len(stdList) == 0:
            print("No Details To Delete!!")
            break
        else:
            del stdList[posChoice]

if choice == 5:
    if len(stdList) == 0:
        print("No Details To Delete!!")
        break
    posChoice = int(input(f"Position Of Student Detail:"))
    delValue = input("Detail To Be Searched: ")
    for value in stdList[posChoice]:
        if value == delValue:
            del stdList[posChoice]

print("Y: To Exit\n"
      "Anything Else To Continue")
exChoice = input("Want To Exit(Y/n): ")
if exChoice.lower() == 'y':
    run = False
run = True
```

➢ OUTPUT

```
1: Add Student Details
2: Show Student Details
3: Modify Details
4: Delete Detail From Given Position
5: Delete Detail With Given Info
Enter The Choice: 1
Enter Student Name: Ishita
Enter Student Class: 11
Enter Student Marks: 258
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 3
1: Change Name
2: Change Class
3: Change Marks
Position Of Details:1
Enter The Choice: 3
Enter The New Detail: 482
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 2

[['Kali', '11', 439], ['Ishita', '11', '482']]

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 5
Position Of Student Detail:1
Detail To Be Searched: Ishita
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 2

[['Kali', '11', 439]]

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 4
Position Of Details:0
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): 2
Enter The Choice: 2
No Information Available!
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): y
```

Ques10. Write a program of tuple with its built-in functions

➢ CODE

```
print("Use Numerals Only To Use All Commands\n"
      "1: Index\n"
      "2: Sorting\n"
      "3: Count A Item\n"
      "4: Find Minimum\n"
      "5: Find Maximum")

inpTuple = eval(input('Enter The Tuple: '))
inpTuple = tuple(inpTuple)
print(inpTuple)

def give(disp):
   inp = input(f"Enter The {disp}: ")
   while not inp.isdigit():
      inp = input(f"Enter {disp} Correctly: ")

   return int(inp)

def askExit():
   print("Y: To Exit\n"
        "Anything Else To Continue")
   exChoice = input("Want To Exit(Y/n): ")
   if exChoice.lower() == 'y':
      return False
   return True

run = True
```

```
while run:
    choice = give('Choice')
    if choice == 1:
        value = eval(input("Enter The Element To Be Indexed: "))
        if value in inpTuple:
            print(f"The Position Of '{value}' Is {inpTuple.index(value)}")
        else:
            print(f"'{value}' Not Found !!")
        run = askExit()

    if choice == 2:
        allowed = True
        for i in inpTuple:
            if type(i) != int:
                allowed = False
        if allowed:
            print(inpTuple)
            inpTuple = tuple(sorted(inpTuple))
            print(inpTuple)
        else:
            print("Sorting is Not Possible!")
        run = askExit()

    if choice == 3:
        value = eval(input("Enter The Element To Be Counted: "))
        print(f"Element '{value}' Has Occurred {inpTuple.count(value)} Times")
        run = askExit()

    if choice == 4:
        print(f"Minimum In {inpTuple} is {min(inpTuple)}")
        run = askExit()

    if choice == 5:
        print(f"Maximum In {inpTuple} is {max(inpTuple)}")
        run = askExit()
```

➢ OUTPUT

```
Use Numerals Only To Use All Commands
1: Index
2: Sorting
3: Count A Item
4: Find Minimum
5: Find Maximum
Enter The Tuple: (1,3,5,2,9,6,8,4,7,10,2,7,4,1,8,6)
(1, 3, 5, 2, 9, 6, 8, 4, 7, 10, 2, 7, 4, 1, 8, 6)
Enter The Choice: 5
Maximum In (1, 3, 5, 2, 9, 6, 8, 4, 7, 10, 2, 7, 4, 1, 8, 6) is 10
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 4
Minimum In (1, 3, 5, 2, 9, 6, 8, 4, 7, 10, 2, 7, 4, 1, 8, 6) is 1
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 3
Enter The Element To Be Counted: 6
Element '6' Has Occurred 2 Times
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 2
(1, 3, 5, 2, 9, 6, 8, 4, 7, 10, 2, 7, 4, 1, 8, 6)
(1, 1, 2, 2, 3, 4, 4, 5, 6, 6, 7, 7, 8, 8, 9, 10)
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 1
Enter The Element To Be Indexed: 8
The Position Of '8' Is 12
Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): y
```

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Ques11. Write a program using dictionary

➢ CODE

```
oxford = {'Iatrochemistry': "study of chemistry in relation to"
        "the physiology, pathology, and treatment of disease",
        'Sabotage': "any underhand interference"
        "with production or work by enemy",
        'Habilitate': "to become fit",
        'Ichthyolite': "a fossil fish",
        'Tactician': "a person who is adept in planning tactics",
        'Apologise': "express regret for something that one has done wrong",
        }

run = True
while run:
    print("\n1: Show Dictionary Items"
        "\n2: Show Word Meaning"
        "\n3: Add Words To Dictionary"
        "\n4: Update Meaning\n")
    choice = input("Enter The Choice: ")
    while not choice.isdigit():
        choice = input("Enter The Choice Correctly: ")
    choice = int(choice)

    if choice == 1:
        dispValue = enumerate(oxford)
        for i in dispValue:
            print(f"{i[0]+1} : {i[1]}")

    if choice == 2:
        word = input("Enter The Word: ")
        if word in oxford.keys():
            print(f"\n{word}: {oxford[word]}")
        else:
            print("Word Not Found!")
```

```
if choice == 3:
    word = input("Enter The Word: ")
    meaning = input("Enter Meaning Of Word: ")
    oxford[word] = meaning

if choice == 4:
    word = input("Enter The Word To Be Updated: ")
    if word in oxford.keys():
        oxford[word] = input("Enter The New Meaning: ")
    else:
        print("Word Not Found!!")

print("\nY: To Exit"
      "\nAnything Else To Continue")
exChoice = input("Want To Exit(Y/n): ")
if exChoice.lower() == 'y':
    run = False
```

➢ OUTPUT

```
1: Show Dictionary Items
2: Show Word Meaning
3: Add Words To Dictionary
4: Update Meaning

Enter The Choice: 1
1 : Iatrochemistry
2 : Sabotage
3 : Habilitate
4 : Ichthyolite
5 : Tactician
6 : Apologise

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 2
Enter The Word: Iatrochemistry

Iatrochemistry: study of chemistry in relation tothe physiology, pathology, and treatment of disease
```

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 3
Enter The Word: Integrity
Enter Meaning Of Word: quality of being honest

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 4
Enter The Word To Be Updated: Integrity
Enter The New Meaning: the quality of being honest

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): n
Enter The Choice: 2
Enter The Word: Integrity

Integrity: the quality of being honest

Y: To Exit
Anything Else To Continue
Want To Exit(Y/n): y

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Ques12. Write a program for calculating factorial using both while and for loop

➢ CODE

```
Num = int(input('Enter The Number: '))
Multiplier = Num
Answer = Num

while Multiplier > 1:
    Multiplier -= 1
    Answer *= Multiplier
print(f"{Num}! = {Answer} Using While Loop")

Answer = Num
for i in range(1, Num):
    Answer *= i
print(f"{Num}! = {Answer} Using For Loop")
```

➢ OUTPUT

```
Enter The Number: 25
25! = 15511210043330985984000000 Using While Loop
25! = 15511210043330985984000000 Using For Loop
```

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THANK YOU