|  |  |
| --- | --- |
| **EX.NO: 02** | **CONTROL STATEMENTS** |
| **DATE:** |

**PROGRAM 1:**

**Develop a python program for finding the absolute value of a given number. This is always measured as positive number. This number is the distance of given number from the 0(Zero). The input value may be integer, float or complex number in Python. The absolute value of given number may be integer or float.**

**n=input('enter a number:')**

**if 'j' in n:**

**print(abs(complex(n)))**

**elif '.' in n:**

**print(abs(float(n)))**

**else:**

**print(abs(int(n)))**

**OUTPUT:**

**enter a number:-13-14j**

**19.1049731745428**

**PROGRAM 2:**

**Calculate the Total selling price after levying the GST (Goods and Service Tax) as CGST and SGST on sale. CGST (Central Govt. GST), SGST (State Govt. GST) .**

**Sale amount CGST Rate SGST Rate**

**0-50000 5% 5%**

**Above 50000 18% 18%**

**n=int(input("enter the sale amount"))**

**if(n<=50000):**

**cgst=n\*5/100**

**sgst=n\*5/100**

**ta=n+cgst+sgst**

**print("total amount",ta)**

**elif(n>=50000):**

**cgst=n\*18/100**

**sgst=n\*18/100**

**ta=n+cgst+sgst**

**print("total amount",ta)**

**else:**

**print("enter a positive value")**

**OUTPUT:**

**enter the sale amount55000**

**total amount 74800.0**

**PROGRAM 3:**

**Write a Python program to construct the following pattern, using a nested for loop.**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

**str1="\*"**

**for i in range(1,6):**

**for j in range(1,i+1):**

**print(str1,end=" ")**

**print()**

**for i in range(4,0,-1):**

**for j in range(1,i+1):**

**print(str1,end=" ")**

**print()**

**OUTPUT:**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

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**PROGRAM 4:**

**Write a Python program to guess a number between 1 and 9. Note: The User is prompted to enter a guess. If the user guesses wrong, then the prompt appears again until the guess is correct. On a successful guess, the user will get a "Well guessed!" message, and the program will exit.**

**import random**

**n=random.randint(1,9)**

**g=int(input('guess a number'))**

**while(g!=n):**

**g=int(input('guess a number'))**

**print("Well guessed")**

**OUTPUT:**

**guess a number7**

**guess a number8**

**guess a number9**

**guess a number4**

**Well guessed**

**PROGRAM 5:**

**You have two streaming subscriptions and want to find out how much you spend each month and how much you could save if you switch to paying annually. Each subscription has a monthly cost and offers a discounted annual rate.**

**Write a Python program to calculate the total monthly cost for both subscriptions, the total annual cost if you continue paying monthly, and compare this with the yearly rates you would pay if you switch to annual payments. Finally, choose the yearly payment option to see how much you could save.**

**Test Case:**

**Input:**

**Service 1 = $10/month**

**Service 2 = $12/month**

**Annual Discount for Service 1 = $100**

**Annual Discount for Service 2 = $120**

**Expected Output:**

**Monthly Total: $22.00**

**Total Annual Cost without Discount: $264.00**

**Total Annual Discounted Cost: $220.00**

**Total Savings: $44.00**

**mt=10+12**

**print(f"Monthly Total:${float(mt):.2f}")**

**print(f"Total annual cost without discount:${mt\*12:.2f}")**

**print(f"Total annual cost with discount:${100+120:.2f}")**

**print(f"Toatal savings:${(mt\*12)-(100+120):.2f}")**

**OUTPUT:**

**Monthly Total:$22.00**

**total annual cost without discount:$264.00**

**total annual cost with discount:$220.00**

**Toatal savings:$44.00**

**PROGRAM 6:**

**Write a Python program that iterates through integers from 1 to 50. For each multiple of three, print "Fizz" instead of the number; for each multiple of five, print "Buzz". For numbers that are multiples of both three and five, print "FizzBuzz".**

**s1='Fizz'**

**s2='Buzz'**

**for i in range (1,51):**

**if(i%3==0 and i%5==0):**

**print(s1+s2)**

**elif(i%3==0):**

**print(s1)**

**elif(i%5==0):**

**print(s2)**

**else:**

**print(i)**

**OUTPUT:**

**1**

**2**

**Fizz**

**4**

**Buzz**

**Fizz**

**7**

**8**

**Fizz**

**Buzz**

**11**

**Fizz**

**13**

**14**

**FizzBuzz**

**16**

**17**

**Fizz**

**19**

**Buzz**

**Fizz**

**22**

**23**

**Fizz**

**Buzz**

**26**

**Fizz**

**28**

**29**

**FizzBuzz**

**31**

**32**

**Fizz**

**34**

**Buzz**

**Fizz**

**37**

**38**

**Fizz**

**Buzz**

**41**

**Fizz**

**43**

**44**

**FizzBuzz**

**46**

**47**

**Fizz**

**49**

**Buzz**

**PROGRAM 7:**

**Write a Python program that takes two digits, m (row) and n (column) as input and generates a two-dimensional array. The element value in the i-th row and j-th column of the array should be i\*j.**

**Note :**

**i = 0,1.., m-1**

**j = 0,1, n-1.**

**Test Data : Rows = 3, Columns = 4**

**Expected Result : [[0, 0, 0, 0], [0, 1, 2, 3], [0, 2, 4, 6]]**

**m=int(input("enter the row value:"))**

**n=int(input("enter the column value:"))**

**l=[[ i\*j for j in range(n)]for i in range(m)]**

**print(l)**

**OUTPUT:**

**enter the row value:3**

**enter the column value:4**

**[[0, 0, 0, 0], [0, 1, 2, 3], [0, 2, 4, 6]]**

**PROGRAM 8:**

**Write a Python program for Grade Classification Scenario: A school system classifies grades as follows:**

**A (90 and above)**

**B (70 to 89)**

**C (50 to 69)**

**D (below 50)**

**Question: What grade will be assigned to a student who scores 85? If the score is 92, what grade will the program output**

**n=int(input("enter the score:"))**

**if n>=90:**

**print("A")**

**elif n>=70 and n<=89:**

**print("B")**

**elif n>=50 and n<=69:**

**print("C")**

**else:**

**print("D")**

**OUTPUT:**

**enter the score:92**

**A**

**enter the score:85**

**B**

**PROGRAM 9:**

**Write a program that prints the multiplication table of a user-entered number up to 10.**

**n=int(input("enter a number:"))**

**for i in range(1,11):**

**print(f"{i}\*{n}={n\*i}")**

**OUTPUT:**

**enter a number:5**

**1\*5=5**

**2\*5=10**

**3\*5=15**

**4\*5=20**

**5\*5=25**

**6\*5=30**

**7\*5=35**

**8\*5=40**

**9\*5=45**

**10\*5=50**

**PROGRAM 10:**

**Write a Python program to check the validity of passwords input by users. Validation :**

**At least 1 letter between [a-z] and 1 letter between [A-Z].**

**At least 1 number between [0-9].**

**At least 1 character from [$#@].**

**Minimum length 6 characters.**

**Maximum length 16 characters.**

**str1=input('enter your password')**

**str2='$#@'**

**lst=[False,False,False,False,False]**

**if len(str1)<=16 and len(str1)>=6:**

**lst[0]=True**

**for i in str1:**

**if i in str2:**

**lst[4]=True**

**if i.isupper():**

**lst[1]=True**

**if i.islower():**

**lst[2]=True**

**if i.isnumeric():**

**lst[3]=True**

**if (all(lst)):**

**print("valid password")**

**else:**

**print("invalid password")**

**OUTPUT:**

**enter your passwordpaaS123@**

**valid password**

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| **DEPARTMENT OF CSE** | | |
| Program | 10 |  |
| Output | 5 |  |
| Viva-Voce | 5 |  |
| Total | 20 |  |