List of Programs Problem Solving Using Python

1. Python Program to Print Hello World!
2. Write a program for the addition of Two Numbers.
3. Write a program to Read Two Numbers and Print Their Quotient and Remainder.
4. Write a program to Find the Average of Three Numbers.
5. Write a program to Calculate Sum of 5 Subjects and Find Percentage (Max Mark in each subject is 100).
6. Write a program to find gross salary.
7. Write a program to Calculate Area of Rectangle, Square.
8. Write a program to Calculate Area of Scalene Triangle and Right-angle Triangle.
9. Write a program to find the volume and surface area of cube, cuboids and cylinder.
10. Write a program to Calculate Volume and surface area of Cone, Sphere and Cylinder.
11. Write a program to find the area of trapezium, rhombus and parallelogram.
12. Write a program to find the perimeter of a circle, rectangle and triangle.
13. Write a program to Compute Simple Interest.
14. Write a program to Convert Fahrenheit temperature in to Celsius.
15. Write a program to Find the Gravitational Force Acting Between Two Objects.
16. Write a program to swap the values of two variables with and without using third variable.
17. Write a program to perform arithmetic operations on a = 8, b = 3.
18. Write a program to apply relational operations on a=8, b=3.
19. Write a program to apply assignment operations on a=8, b=3.
20. Write a program to apply logical operations on a=8, b=3.
21. Write a program to apply bitwise operations on a=8, b=3.
22. Write a program to apply identity operators.
23. Write a program to Swap the Contents of two Numbers using Bitwise XOR Operation
24. Write a program to Multiply given Number by 4 using Bitwise Operators.
25. Python Program to Find the Square Root.
26. Python program to convert all units of time into seconds.
27. Python program to calculate midpoints of a line-segment.
28. Python program to display your details like name, age, address in three different lines.
29. Python program to compute the distance between the points (x1, y1) and (x2, y2).
30. WAP to find the absolute value of the given number.
31. WAP to demonstrate implicit and explicit type conversion.
32. WAP to compute -9+9-8*6%8-int(19//10/2)|12&14 also explain operator precedence.
33. WAP to reverse a string.

34. WAP to develop a new string has even position characters of given string. Ex: input: “GOKUGOHAN”, Output: “GKGHN”

Conditional statement

35. Write a program to Accept two Integers and Check if they are Equal.

36. Write a program to Check if a given Integer is Positive or Negative and Odd or Even.

37. Write a program to Check if a given Integer is Divisible by 7 or not.

38. Write a program to find the greatest of three numbers using else if ladder.

39. Write a program to find the greatest of three numbers using Nested if.

40. Write a program to convert an Upper-case character into lower case and vice-versa.

41. Write a program to check weather an entered year is leap year or not.

42. Write a Program to check whether an alphabet entered by the user is a vowel or a constant.

43. Write a program to Read a Coordinate Point and Determine its Quadrant.

44. Write a program to Add two Complex Numbers.

45. Write a Program to find roots of a quadratic expression.

46. Write a program to print day according to the day number entered by the user.

47. Write a program to print color name, if user enters the first letter of the color name.

48. Write a program to Simulate Arithmetic Calculator.

49. Write a menu driven program for calculating area of different geometrical figures such as circle, square, rectangle, and triangle.

50. WAP that accepts the marks of 5 subjects and finds the percentage marks obtained by the student. It also prints grades according to the following criteria: Between 90-100% Print 'A', 80-90% Print 'B', 60-80% Print 'C', 50-60% Print 'D', 40-50% Print 'E', Below 40% Print 'F’.

51. WAP to enter a character and then determine whether it is a vowel, consonants, or a digit.

LOOPS:

52. Write a program to display all even numbers from 1 to 20

53. Write a program to print all the Numbers Divisible by 7 from 1 to 100.

54. Write a program to print table of any number.

55. Write a program to print 1,2,3,5,6,7,8,9 use continue statement.

56. Write a program to print table of 5 in following format.

5 X 1 = 5

5 X 2 = 10

5 X 3 = 15

57. Write a program to Find the Sum of first 50 Natural Numbers using for Loop.

58. Write a program to calculate factorial of a given number using for loop and also using while loop.

59. Write a program to count the sum of digits in the entered number.

60. Write a program to find the reverse of a given number.

61. Write a program to Check whether a given Number is Perfect Number.

62. Write a program to check if the given number is a Disarium Number ($1^1+ 7^2 + 5^3 = 1+ 49 + 125 = 175$).

63. Write a program to determine whether the given number is a Harshad Number (If a number is divisible by the sum of its digits, then it will be known as a Harshad Number).

64. Write a program to Print Armstrong Number from 1 to 1000.

65. Write a program to Compute the Value of X^n.

66. Write a program to Calculate the value of ${}^nC_r$.

67. Write a program to generate the Fibonacci Series.

68. Write a program to check whether a given Number is Palindrome or Not.

69. Write a program to Check whether a given Number is an Armstrong Number.

70. Write a program to check weather a given number is prime number or not.

71. Write a program to print all prime numbers from 1-500.

72. Write a program to find the Sum of all prime numbers from 1-1000.

73. Write a program to display the following pattern:

```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

74. Write a program to display the following pattern:

```
*
* *
* * *
* * * *
* * * * *
```

75. Write a program to display the following pattern:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

76. Write a program to display the following pattern:

```
1
```

2 2

3 3 3

4 4 4 4

5 5 5 5 5

77. Write a program to display the following pattern:

A

B B

C C C

D D D D

E E E E E

78. Write a program to display the following pattern:

* * * * *

* * * *

* * *

* *

*

79. Write a program to display the following pattern:

1 2 3 4 5

1 2 3 4

1 2 3

1 2

1

80. Write a program to display the following pattern:

*

* * *

* * * * *

* * * * * * *

* * * * * * * * *

81. Write a program to display the following pattern:

1

2 3 2

3 4 5 4 3

4 5 6 7 6 5 4

5 6 7 8 9 8 7 6 5

82. Write a program to display the following pattern:

* * * * * * * * *

* * * * * * *

* * * * *

* * *

*

83. Write a program to display the following pattern (Pascal Triangle):

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

1 5 10 10 5 1

84. Write a program to display the following pattern:

1

2 3

4 5 6

7 8 9 10

85. Write a program to display the following pattern:

A

B A B

A B A B A

B A B A B A B

86. Write a program to display the following pattern:

1

0 1 0

1 0 1 0 1

0 1 0 1 0 1 0

87. Write a program to display the following pattern:

```
A B C D E F G F E D C B A
A B C D E F   F E D C B A
A B C D E       E D C B A
A B C D           D C B A
A B C               C B A
A B                   B A
A                       A
```

88. Write a program to display the following pattern:

```
**********
**** ****
***   ***
**    **
*     *
```

89. Write a program to display the following pattern:

```
          *
         * *
        * * *
       * * * *
      * * * * *
      * * * * *
       * * * *
        * * *
         * *
          *
```

90. Write a program to display the following pattern:

```
0
01
010
0101
01010
```

91. Write a program to display the following pattern:

```
0          0
01        10
010      010
0101    1010
0101001010
```

92. Write a program to display the following pattern:

```
1          1
12        21
123      321
1234    4321
1234554321
```

93. Write a program to display the following pattern:

```
A
B C
D E F
G H I J
K L M N O
```

94. Write a program to display the following pattern:

```
    A
   BAB
  CBABC
 DCBABCD
EDCBABCDE
```

95. Write a program to display the following pattern:

1A2B3C4D5E

1A2B3C4D

1A2B3C

1A2B

1A

96. Write a program to display the following pattern:

0

1 0 1

2 1 0 1 2

3 2 1 0 1 2 3

4 3 2 1 0 1 2 3 4

97. Write a program to Find the Sum of A.P Series.

98. Write a program to Find the Sum of G.P Series.

99. Write a program to Find the Sum of H.P Series.

100. Write a program to print the following sequence of integers.

1, 2, 4, 8, 16, 32

101. Write a program to find the Sum of following Series:

(1*1) + (2*2) + (3*3) + (4*4) + (5*5) + ... + (n*n)

102. Write a program to find the Sum of following Series:

(1) + (1+2) + (1+2+3) + (1+2+3+4) + ... + (1+2+3+4+...+n)

103. Write a program to find the Sum of following Series:

1! + 2! + 3! + 4! + 5! + ... + n!

104. Write a program to find the Sum of following Series:

(1^1) + (2^2) + (3^3) + (4^4) + (5^5) + ... + (n^n)

105. Write a program to find the Sum of following Series:

(1!/1) + (2!/2) + (3!/3) + (4!/4) + (5!/5) + ... + (n!/n)

106. Write a program to find the Sum of following Series:

[(1^1)/1] + [(2^2)/2] + [(3^3)/3] + [(4^4)/4] + [(5^5)/5] + ... + [(n^n)/n]

107. Write a program to find the Sum of following Series:

[(1^1)/1!] + [(2^2)/2!] + [(3^3)/3!] + [(4^4)/4!] + [(5^5)/5!] + ... + [(n^n)/n!]

108. Write a program to find the Sum of following Series:

1/2 - 2/3 + 3/4 - 4/5 + 5/6 - ..... upto n terms

109. Write a program to print the following Series:

1, 2, 3, 6, 9, 18, 27, 54, ... upto n terms

110. Write a program to print the following Series:

2, 15, 41, 80, 132, 197, 275, 366, 470, 587

111. Write a program to print the following Series:

1, 3, 4, 8, 15, 27, 50, 92, 169, 311

112. Write a program to Convert the given Binary Number into Decimal.

113. Write a program to Convert Binary to Hexadecimal.

114. Write a program to Convert Decimal to Hexadecimal.

115. Write a program to Convert Roman Number to Decimal Number.

116. Write a program to Convert Hexadecimal to Binary.

117. Write a program to Find the Sum of two Binary Numbers.

118. Write a program to Find Multiplication of two Binary Numbers.

119. Write a program to find out L.C.M. of two numbers.

120. Write a program to find out H.C.F. of two numbers.

121. Python Program to Accept Three Digits and Print all Possible Combinations from the Digits.

122. Python Program to Print Odd Numbers within a Given Range.

123. Python Program to Find the Smallest Divisor of an Integer.

124. Python Program to Count the Number of Digits in a Number

125. Python Program to Print all Integers that Aren't Divisible by Either 2 or 3 and lie between 1 and 50.

126. Python program to find GCD between two given integer numbers.

Functions

127. Write a Python function to find the Max of three numbers.

128. Write a Python function to sum all the numbers in a list.

Sample List : (8, 2, 3, 0, 7)

Expected Output : 20

129. Write a Python function to multiply all the numbers in a list.

Sample List : (8, 2, 3, -1, 7)

Expected Output : -336

130. Write a Python program to reverse a string.

Sample String : "1234abcd"

Expected Output : "dcba4321"

131. Write a Python program calculate the factorial of a number using lambda and reduce functions. The function accepts the number as an argument.

132. Write a Python function to check whether a number falls in a given range.

133. Write a Python function that accepts a string and calculate the number of upper-case letters and lower-case letters.

Sample String: 'The quick Brow Fox'

Expected Output :

No. of Upper case characters : 3

No. of Lower case Characters : 12

134. Write a Python function that takes a list and returns a new list with unique elements of the first list.

Sample List : [1,2,3,3,3,3,4,5]

Unique List : [1, 2, 3, 4, 5]

135. Write a Python function that takes a number as a parameter and check the number is prime or not.

136. Write a Python function that checks whether a passed string is palindrome or not.

137. Write a Python function that prints out the first n rows of Pascal's triangle.

138. Write a Python function to check whether a string is a pangram or not.

Note: Pangrams are words or sentences containing every letter of the alphabet at least once.

For example: "The quick brown fox jumps over the lazy dog"

139. Write a Python function that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically.

Sample Items: green-red-yellow-black-white

Expected Result: black-green-red-white-yellow

140. Python function to convert height (in feet and inches) to centimeters.

141. Python function to Convert Celsius to Fahrenheit.

142. Python function to display all the Armstrong number from 1 to n.

Recursion:

143. Write a program using recursion to compute factorial of a given number.

144. Write a program to print Fibonacci Series using recursion.

145. Write a program to calculate sum of numbers 1 to N using recursion.

146. Write a program to Find Sum of Digits of the Number using Recursive Function.

147. Write a program to print Tower of Hanoi using recursion.

148. Python Program to Determine How Many Times a Given Letter Occurs in a String Recursively

149. Python Program to Find the Binary Equivalent of a Number Recursively

150. Python Program to Find the GCD of Two Numbers Using Recursion

151. Python Program to Find if a Number is Prime or Not Prime Using Recursion

152. Python Program to Find the Power of a Number Using Recursion

153. Python Program to Check Whether a String is a Palindrome or not Using Recursion

154. Python Program to Reverse a String Using Recursion.

155. WAP to convert a list of string type numbers into list of integer type numbers using map function.
Ex: Input: ['45','88','9'] Output:[45,88,9]

156. WAP to find the largest element in the list using reduce function.

157. WAP to compute the cube of all numbers in the given list using map() function.

158. WAP to multiply two numbers using lambda function.

159. WAP to create a new list consisting of odd numbers from the given list of numbers using filter() function.

160. WAP to compute the sum of all the elements of the list using reduce() function.

String:

161. Python program to check whether the string is Symmetrical or Palindrome

162. Ways to remove i'th character from string in Python

163. Python program to Check if a Substring is Present in a Given String

164. Find length of a string in python (4 ways)

165. Python program to print even length words in a string

166. Python program to accept the strings which contains all vowels

167. Remove all duplicates from a given string in Python

168. Python program to Maximum frequency character in String

169. Python Program to check if a string contains any special character

170. Find words in string which are greater than given length k

171. Python program to split and join a string

172. Python program to Replace duplicate Occurrence in String

173. Python program to Check for URL in a String

174. Python program to find all duplicate characters in string

175. Python Program to Replace all Occurrences of 'a' with $ in a String

176. Python Program to Form a New String where the First Character and the Last Character have been Exchanged

177. Python Program to Count the Number of Vowels in a String

178. Python Program to Take in a String and Replace Every Blank Space with Hyphen

179. Python Program to Calculate the Length of a String Without Using a Library Function

180. Python Program to Remove the Characters of Odd Index Values in a String

181. Python Program to Calculate the Number of Words and the Number of Characters Present in a String

182. Python Program to Take in Two Strings and Display the Larger String without Using Built-in Functions

183. Python Program to Check if a String is a Pangram or Not
(A pangram is a sentence that uses all 26 letters of the English alphabet at least once. like" The quick brown fox jumps over the lazy dog")

184. Python Program to Accept a Hyphen Separated Sequence of Words as Input and Print the Words in a Hyphen-Separated Sequence after Sorting them Alphabetically

185. Python Program to Form a New String Made of the First 2 and Last 2 characters From a Given String

186. Python Program to Count the Occurrences of Each character in a Given String Sentence

187. Python Program to Check if a Substring is Present in a Given String

188. Python Program to Print All Permutations of a String in Lexicographic Order without Recursion

189. Python Program to Find the Most Repeated Word in a String.

LIST

190. Program to interchange first and last elements in a list

191. WAP to find min, max and average of elements of a list having numeric data

192. Program to check if element exists in list

193. Program for Reversing a List

194. Program to Multiply all numbers in the list

195. Program to find smallest and largest number in a list

196. Program to find second largest number in a list

197. Program to print all even numbers in a range

198. Program to print all negative numbers in a range

199. Program to Remove multiple elements from a list in Python

200. Program to Cloning or Copying a list

201. Program to Count occurrences of an element in a list

202. Program to find Cumulative sum of a list

203. Program to Break a list into chunks of size N in Python

204. Python Program to transpose of Matrix.

205. Python Program to Add Two Matrices.

206. Python Program to Multiply Two Matrices.

207. Program to get K^{th} Column of Matrix

208. WAP to print all even numbers of a list using list comprehension.

209. WAP that prompts user to enter an alphabet and then print all the words that starts with that alphabet from the list of words.

210. WAP to transpose a given matrix using list comprehension.

Tuple:

211. Python program to Find the size of a Tuple

212. Python – Maximum and Minimum K^{th} elements in Tuple

213. Create a list of tuples from given list having number and its cube in each tuple

214. Python – Flatten tuple of List to tuple

215. Python – Convert Nested Tuple to Custom Key Dictionary

Set:

216. Python Program to Count the Number of Vowels Present in a String using Sets

217. Python Program to Check Common Letters in Two Input Strings

218. Python Program that Displays which Letters are in the First String but not in the Second

219. Python Program that Displays which Letters are Present in Both the Strings

220. Python Program that Displays which Letters are in the Two Strings but not in Both

221. Write a program that generates a set of prime numbers and another set of odd numbers. Demonstrate the result of union, intersection, difference and symmetric difference operations on these sets.

Dictionary:

222. Python Program to Add a Key-Value Pair to the Dictionary

223. Python Program to Concatenate Two Dictionaries into One.

224. Python Program to Check if a Given Key Exists in a Dictionary or Not

225. Python Program to Generate a Dictionary that Contains Numbers (between 1 and n) in the Form (x,x*x).

226. Python program to create an instance of an Ordered dict using a given dictionary. Sort the dictionary during the creation and print the members of the dictionary in reverse order.

227. Python Program to Sum All the Items in a Dictionary

228. WAP to create dictionary which has characters of given string as keys and frequency of characters as values.

229. Python Program to Multiply All the Items in a Dictionary

230. Python Program to Remove the Given Key from a Dictionary

231. Python Program to Form a Dictionary from an Object of a Class

232. Python Program to Map Two Lists into a Dictionary

233. Python Program to Count the Frequency of Words Appearing in a String Using a Dictionary

234. Python Program to Create a Dictionary with Key as First Character and Value as Words Starting with that Character

Python File Handling Programs:

235. Python program to read file word by word

236. Python program to read character by character from a file

237. Python – Get number of characters, words, spaces and lines in a file

238. Program to Find 'n' Character Words in a Text File

239. Python Program to obtain the line number in which given word is present

240. Count number of lines in a text file in Python

241. Python Program to remove lines starting with any prefix

242. Python Program to Eliminate repeated lines from a file

243. Python Program to read List of Dictionaries from File

244. Python – Append content of one text file to another

245. Python program to copy odd lines of one file to other

246. Python Program to merge two files into a third file

247. Python program to Reverse a single line of a text file

248. Python program to reverse the content of a file and store it in another file

249. Python Program to handle divide by zero exception.

250. WAP to handle multiple exception.

251. Python program to combine each line from first file with the corresponding line in second file.