Weekly Assignment 1

1. Write a Python program to delete the last digit and print this. If input is 13613 then output is 3.
2. Write a Python program to print the second last digit. If input is 427 then output is 2.
3. Write a Python program to exchange the last two digits. If input is 23617 then output is 23671.
4. Write a Python program to read a number and find their product after exchanging last digits. If inputs are 348 and 31 then output is 12958 (341*38).
5. Write a Python program to print the sum of last two digits. If input is 13613 then output is 1+3=4

Weekly Assignment 2

1. Write a Python program, which reads a, b and c as sides of a triangle and prints area. Hint: area = $\sqrt{s*(s-a)*(s-b)*(s-c)}$. [Hint: s is (a+b+c)/2]. If input 5,7,10 then output 16.24.
2. Write a Python program that accepts principle, rate and time from the user and print the simple interest.
3. Write a Python program that prompts the user to input principle, rate, and time and calculate compound interest.
4. Write a Python program, which reads x1, y1, x2 and y2 and finds distance between points (x1, y1) and (x2, y2). If input 3(x1), 7(y1), 11(x2), 13(y2) then output 10.
5. Write a Python program, which reads a, b, and c. Let ax + by + c = 0 be equation of a line. Print the slope. If input 3, 5, 8 then output -0.6.

Weekly Assignment 3

1. Write a Python program that checks if a character entered by the user is a vowel or a consonant.
2. Write a Python program that finds the largest of three numbers entered by the user.
3. Write a Python program that finds the smallest of three numbers entered by the user.
4. Write a Python program that checks if a person is eligible to vote.

   If (age >= 18) then print “You are eligible to vote”, otherwise print “You are not eligible to vote”.
5. Write a Python program to find out the volume of cone, where radius and height of the cone should be user given input.

Weekly Assignment 4

1. Write a Python program to exchange last and third last digit. If input is 23617 then output is 23716.
2. Write a Python program to double the second last digit and print the number. If input is 234 then output is 238.
3. Write a Python program to insert 1 as a first digit after the decimal. If input is 12.34 then output is 12.134.
4. Write a Python program to insert 1 as a digit before the decimal. If input is 12.34 then output is 121.34.
5. Write a Python program to find the first digit of the fractional part. If input is 12.347 then output is 3.

Weekly Assignment 5

1. Write a Python program which reads three integers X, Y and Z and prints Y+Z if X is 0. If X is 1 then Y-Z is printed. If X is 2 then Y*Z is printed. If X is 3 then Y/Z is printed.
2. Write a Python program which reads a, b and c as sides of a triangle and prints whether angle A is 90° or not. [Hint: if (a^2 = = b^2+c^2)]
3. A student is awarded E grade if he gets more than 90 marks. He is awarded A grade if marks are between 80 and 89. Similarly range for B, C, D and P are 70-79, 60-69, 50-59, and 35-49 respectively. The student is awarded F grade if he gets less than 35 marks. Write a Python Program that reads marks of a student and prints his grade.
4. Write a Python program which reads a number X and prints a number Y. Y=X+10 if X is 6. Y is X*X if X is 7. Y is 2*X+4 if X is 12. Otherwise Y is X*6-1.
5. Write a Python program, which reads a, b, and c. Let $x^2 + y^2 + 2ax + 2by + c = 0$ be equation of a circle. Print its centre and radius. If Input 10, -6 and -2 then output is centre (-10,6) and radius 11.7.

Weekly Assignment 6

1. Write a Python program, which reads a, b, c, p, q and r. Let ax + by + c = 0 and px + qy + r = 0 be equations of lines. Print their point of intersection. If input 4, 8, 12, 2, 7, 3 then output (-5,1).
2. Write a Python program, which reads a, b and c as sides of a triangle and prints the angle A in degree. Hint: $a^2 = b^2 + c^2 – 2bcCOS(A)$. [Hint: use acos Example: Input 13, 12, 5 output 90. input 10, 20, 17.32 output 30. input 7, 7, 7 output 60]
3. Write a Python program, which reads a, b, c, d and e and prints the distance between point (a,b) and line cx+dy+e=0. [Hint: $(ac+bd+e)/(c^2+d^2)^{1/2}$.] input 6, 7, 3, 4, 2 output 9.6.
4. Write a Python program, which reads a, b and c. Let $ax^2 + bx + c=0$ be a quadratic equation. If roots are real and distinct then both roots are printed. If roots are equal, then only one root is printed. If roots are imaginary, then real part and complex part of both roots are printed.
5. Write a Python program, which reads a, b and c. Let ax + by + c = 0 be equation of line. Print its slope. The program also prints whether the line is vertical or not.

Weekly Assignment 7

1. Write a Python program to reverse the digits of a user given integer value.
2. Write a Python program to print the summation of digits of user given input number.
3. Write a Python program to check whether user given input number is Palindrome or not.
4. Write a Python program to find all the Fibonacci numbers for a given range.
5. Write a Python program to calculate the Factorial of any user given integer number.

Weekly Assignment 8

1. Write a Python program to find out X to the power Y (X^Y) without using pow function.
2. Write a Python program to print numbers from 1 to 10 using while loop.
3. Write a Python program to print the numbers, which is divisible by either 5 or 7 within 1 to 50 using a while loop.
4. Write a Python program to check whether any user given input number is Armstrong number or not. [Example- Armstrong number (153) = $1^3 + 5^3 + 3^3$, Armstrong number is a number which is equal to the sum of cubes of its digits]
5. Write a Python program to check whether any user given input number is Peterson/Krishnamurthy number or not. [Example- Peterson/Krishnamurthy number (145) = 1! + 4! + 5! , A number is said to be a Peterson/Krishnamurthy number if the sum of factorials of each digit of the number is equal to the number itself]

Weekly Assignment 9

1. Write a Python program to calculate the summation of the given series:

   S=1+3+5+7+..... (the last term should be the user input)

2. Write a Python program to calculate the summation of the given series:

   S=1-2+3-4+..... (the last term should be the user input).

3. Write a Python program to calculate the summation of the given series:

   S=1/2+1/4+1/6+..... (the last term should be the user input).

4. Write a Python program to calculate the summation of the given series:

   S=1/2+2/3+3/4+..... (the last term should be the user input)

5. Write a Python program to calculate the summation of the given series:

   S=1/3+3/5+5/7+..... (the last term should be the user input)

Weekly Assignment 10

1. Write a Python program to create a multiplication table for 5 using range function.
2. Write a Python program to print numbers from 10 to 1 in reverse order using range function.
3. Write a Python program to print all even and odd numbers, within 1 to 50 using for loop.
4. Write a Python program to calculate the factorial of any user given input number using for loop.
5. Write a Python program to count the total word length in a given input string. [I/P = I am a good boy, O/P = 11]

Weekly Assignment 11

1. Write a Python program to calculate the sum of first N natural numbers.
2. Write a Python program to count the number of digits in a number.
3. Write a Python program to find the length of a string without using len () function.
4. Write a Python program to count the number of vowels in a string.
5. Write a Python program to concatenate two strings.

Weekly Assignment 12

1. Write a Python program to find the GCD of two user given input numbers.
2. Write a Python program to find the LCM of two user given input numbers.
3. Write a Python program to check if a character is a Vowel or Consonant.
4. Write a Python program to check whether a number is divisible by both 7 and 11.
5. Write a Python program to count the number of words in a string.

Weekly Assignment 13

Write a Python program to print the following series upto N terms-

1. 1 2 3 4 5 6 7 8 9 10……
2. 2 4 6 8 10 12 14 16 18 20…….
3. 0 5 10 15 20 25 30 35 40 45……..
4. 3 6 9 12 15 18 21 24 27 30……
5. 10 11 12 13 14 15 16 17 18 19……

Weekly Assignment 14

Write a Python program to print the following series upto N terms-

1. -5 -1 3 7 11 15 19 23 27 31……..
2. 7 5 3 1 -1 -3 -5 -7 -9 -11..…….
3. 50 45 40 35 30 25 20 15 10 5……..
4. 100 90 80 70 60 50 40 30 20 10..……
5. 5 5 5 5 5 5 5 5 5 5..……

Weekly Assignment 15

Write a Python program to print the following series upto N terms-

1. 1 8 27 64 125 216 343 512 729 1000…..
2. 0 1 2 5 12 29 70 169 408 985….. (Pell Numbers Series)
3. 1 1 2 5 14 42 132 429 1430 4862…..(Catalan Numbers Series)
4. 1 1/2 1/3 1/4 1/5 1/6 1/7……(Harmonic Series)
5. 2 1 3 4 7 11 18 29 47 76……..(Lucas Numbers Series)

Weekly Assignment 16

Write a Python program to print the following series upto N terms-

1. 2, 15, 41, 80, 132, 197…..
2. 1, 3, 4, 8, 15, 27, 50…..
3. 1, 9, 17, 33, 49, 73, 97…..
4. 2, 1, 4, 3, 6, 5,……
5. 5, 12, 21, 32, 45……..

Weekly Assignment 17

Write a Python program to print the summation of the following series upto N terms-

1. -1 + 2 + 11 + 26 + 47 +…..
2. 1 + 2 + 2 + 3 + 3 + 3 + 4 + 4 + 4 + 4 +…..…..
3. $1^{2^3} + 2^{3^4} + 3^{4^5} + 4^{5^6}$ +……
4. $1 + \frac{1}{2^2} + \frac{1}{3^3} + \frac{1}{4^4}$ +……
5. $\frac{1}{1!} + \frac{2}{2!} + \frac{3}{3!} + \frac{4}{4!}$ ……..

Weekly Assignment 18

Write a Python program to print the summation of the following series upto N terms-

1. $1+ (1+4) + (1+4+4^2)+ (1+4+4^2+4^3)+…..$
2. $3+33+333+3333+…..……..$
3. $(3^3 – 2^3)+ (5^3 – 4^3)+(7^3 – 6^3)+……$
4. $1^2+ (1^2+2^2)+(1^2+2^2+3^2)+……$
5. $\frac{1}{1\times3} + \frac{1}{3\times5} + \frac{1}{5\times7} + \frac{1}{7\times9} +…….$

Weekly Assignment 19

Write a Python program to print the following series upto N terms -

1. 0, 3/1, 8/3, 15/5…..
2. 3, 7, 13, 21, 31…..…..
3. 3, 20, 63, 144, 230……
4. 0, 5, 14, 27, 44……
5. 3, 6, 18, 24, 45, 54…….

Weekly Assignment 20

Write a Python program to print the following series upto N terms -

1. 7, 21, 49, 91, 147, 217, 301, 399…..
2. 1, 3, 12, 60, 360…..……..
3. 0, 9, 22, 39, 60, 85, 114, 147……
4. 9, 23, 45, 75, 113, 159……
5. -1, 2, 11, 26, 47, 74…….

Weekly Assignment 21

Write a Python program to print the following pattern upto N lines -

1.
```
****
 ***
  **
   *
```

2.
```
****
***
**
*
```

3.
```
   *
  ***
 *****
*******
```

4.
```
*****
 ***
  *
```

5.
```
1
12
123
1234
12345
```

Weekly Assignment 22

Write a Python program to print the following pattern upto N lines -

1.
```
1
22
333
4444
55555
```
2.
```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```
3.
```
55555
4444
333
22
1
```
4.
```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```
5.
```
    1
   2 2
  3 3 3
 4 4 4 4
5 5 5 5 5
 4 4 4 4
  3 3 3
   2 2
    1
```

Weekly Assignment 23

1. Write a Python program to convert your input string into uppercase. Input- Hello World, Output- HELLO WORLD
2. Write a Python program to convert your input string into lowercase. Input- Hello World, Output- hello world
3. Write a Python program to capitalize the first letter of your input string. Input- hello world, Output- Hello world
4. Write a Python program to capitalize the first letter of each word. Input- hello world, Output- Hello World
5. Write a Python program to count the occurrences of a substring. Input- banana Output- the occurrences of ‘a’ is 3

Weekly Assignment 24

1. Write a Python program to find a substring.
2. Write a Python program to replace a substring.
3. Write a Python program to check if all characters are alphabets.
4. Write a Python program to check if all characters are digits.
5. Write a Python program to check if all characters are Alphanumeric.

Weekly Assignment 25

1. Write a Python program to split a string into a list of words.
2. Write a Python program to join a list of strings into a single string.
3. Write a Python program to check if a string starts with a substring.
4. Write a Python program to check if a string ends with a substring.
5. Write a Python program to find the position of the first occurrence of a substring.

Weekly Assignment 26

1. Write a Python program to remove all white spaces from a string.
2. Write a Python program to reverse each word in a string.
3. Write a Python program to find the length of the longest word in a string.
4. Write a Python program to find the length of the smallest word in a string.
5. Write a Python program to find the first non-repeating character in a string.

Weekly Assignment 27

1. Write a Python program to add three numbers using user defined function.
2. Write a Python program to calculate the factorial using user defined function.
3. Write a Python program to calculate a to the power b (a^b) using user defined function without using pow ().
4. Write a Python program to find out the summation of the series using user defined function-
   i) S=1+2+3+4+5+……Nth term
   ii) S=1+3+5+7+9+……Nth term

Weekly Assignment 28

1. Write a Python program to print the series using user defined function upto Nth term-

   i) 1, 4, 9, 16, 25, 36……..

   ii) 2, 4, 8, 16, 32, 64……..

   iii) 1, 3, 7, 13, 21, 31……

   iv) 1, 2, 6, 24, 120, 720…….

   v) 3, 10, 29, 66, 127, 218…..

Weekly Assignment 29

1. Write a Python program to check whether any user input number is Armstrong number or not using user defined function.
2. Write a Python program to check whether any user input number is Krishnamurthy/Peterson/Strong number or not using user defined function.
3. Write a Python program to check whether any user input number is palindrome number or not using user defined function.
4. Write a Python program to print the summation of this series using user defined function upto Nth term.

   S=8+88+888+8888+……N
5. Write a Python program to generate Fibonacci series upto Nth term using user defined function.

Weekly Assignment 30

1. Write a Python program to calculate the summation of N natural numbers using recursion function.
2. Write a Python program to calculate the factorial of any user given input number using recursion function.
3. Write a Python program to calculate a to the power b (a^b) using recursion function. (You can't use pow () and exponent operator)
4. Write a Python program to check whether any use given input number is Armstrong number or not using recursion function.
5. Write a Python program to generate first N Fibonacci series using recursion function.

Weekly Assignment 31

1. Write a Python program to find out the summation of elements in a List, where List size is the user given input.
2. Write a Python program to find out the Maximum in a List without using built in function, where List size is the user given input.
3. Write a Python program to find out the Maximum in a List without using built in function, where List size is the user given input.
4. Write a Python program to reverse a List, where List size is the user given input.
5. Write a Python program to find the index of an element, where List size and element is the user given input.

Weekly Assignment 32

1. Write a Python program to sort a List in ascending order, where List size is the user given input.
2. Write a Python program to sort a List in descending order, where List size is the user given input.
3. Write a Python program to insert new item at a specified index position, where List size is the user given input.
4. Write a Python program to delete item at a specified index position, where List size is the user given input.
5. Write a Python program to multiply all numbers in the List, where List size is the user given input.

Weekly Assignment 33

1. Write a Python program to merge two list, where the items of two lists must be user given input.
2. Write a Python program to check whether a list is empty or not.
3. Write a Python program to find the second largest element in a list, where list size is the user given input.
4. Write a Python program to split a list into even and odd numbers, where list size is the user given input.
5. Write a Python program to find the cumulative sum of a list, where list size is the user given input. (Input= [1,2,3,4], Output=[1,3,6,10])

Weekly Assignment 34

1. Write a Python program to rotate a list in left.
2. Write a Python program to rotate a list in right.
3. Write a Python program to sort a list of strings by length.
4. Write a Python program to check if a list is a palindrome or not.
5. Write a Python program to find the average of a list.

Weekly Assignment 35

1. Write a Python program to find the length of the longest word in a list.
2. Write a Python program to find the length of the smallest word in a list.
3. Write a Python program to shuffle a list.
4. Write a Python program to print all positive numbers in a specified range.
5. Write a Python program to print all negative numbers in a specified range.

Weekly Assignment 36

1. Write a Python program to find the sum of all elements of a tuple.
2. Write a Python program to concatenate two tuples and print it.
3. Write a Python program to convert the list into tuple.
4. Write a Python program to find the length of a tuple.
5. Write a Python program to sort the elements of a tuple in descending order.

Weekly Assignment 37

1. Write a Python program to create a set of unique numbers from a list and display the set.
2. Write a Python program to add multiple elements to a set and display the updated set.
3. Write a Python program that performs union between two sets.
4. Write a Python program that performs intersection between two sets.
5. Write a Python program that performs difference between two sets.

Weekly Assignment 38

1. Write a Python program that performs symmetric difference between two sets.
2. Write a Python program to check if a set is a subset of another set.
3. Write a Python program to check if a set is a superset of another set.
4. Write a Python program using set comprehension to create a set of squares of numbers from 1 to 10.
5. Write a Python program to remove duplicates from a list by converting it into a set, then back to a list.

Weekly Assignment 39

1. Write a Python program to check if an element exists in a set and display an appropriate message.
2. Write a Python program to create a dictionary with key-value pairs representing students and their marks, and display it.
3. Write a Python program to access and print the value associated with a specific key from a dictionary.
4. Write a Python program to update the value of a specific key in a dictionary and print the updated dictionary.
5. Write a Python program to merge two dictionaries and print the result.

Weekly Assignment 40

1. Write a Python program to iterate through a dictionary and print both keys and values.
2. Write a Python program to check if a given key exists in a dictionary, and display a message accordingly.
3. Write a Python program to sort a dictionary by its keys and values.
4. Write a Python program using dictionary comprehension to create a dictionary where the keys are numbers from 1 to 5 and the values are their squares.
5. Write a Python program to create a nested dictionary representing multiple students and their subjects, then print the subject details of a specific student.

Weekly Assignment 41

1. Write a Python program that creates a 1D NumPy array from a list of integers.
2. Write a Python program to create a 2D NumPy array of shape 3×3 with numbers ranging from 1 to 9.
3. Write a Python program that accesses and prints the third element from a 1D NumPy array.
4. Write a Python program to slice a 2D NumPy array and extract the second column.
5. Write a Python program to create a NumPy array of shape 4×4 filled with zeros.

Weekly Assignment 42

1. Write a Python program to create a NumPy array of shape 5×2 filled with ones.
2. Write a Python program to create a 1D NumPy array of 10 random numbers between 0 and 1.
3. Write a Python program to reshape a 1×9 array into a 3×3 matrix.
4. Write a Python program to create a NumPy array of even numbers between 10 and 30.
5. Write a Python program to create a NumPy array with 10 linearly spaced numbers between 0 and 5.

Weekly Assignment 43

1. Write a Python program to find the maximum and minimum values in a NumPy array.
2. Write a Python program to find the sum of all elements in a 1D NumPy array.
3. Write a Python program to perform matrix multiplication of two 3×3 NumPy arrays.
4. Write a Python program to find the transpose of a 2×3 NumPy array.
5. Write a Python program to sort a NumPy array in ascending order.

Weekly Assignment 44

1. Write a Python program to find the mean, median, and standard deviation of the elements in a NumPy array.
2. Write a Python program to flatten a 3×3 NumPy array into a 1D array.
3. Write a Python program to perform element-wise addition of two NumPy arrays.
4. Write a Python program to find the dot product of two 1D NumPy arrays (vectors).
5. Write a Python program to find the cross product of two 1D NumPy arrays (vectors).

Weekly Assignment 45

1. Write a Python program to find the transpose of 3×3 NumPy array.
2. Write a Python program to create a 3×3 identity NumPy array.
3. Write a Python program to find the determinant and inverse of 3×3 NumPy array.
4. Write a Python program to find the Sum of each Row of 3×3 NumPy array.
5. Write a Python program to find the Sum of each Column of 3×3 NumPy array.

Weekly Assignment 46

1. Write a Python program to read from a text file.
2. Write a Python program to write into a text file.
3. Write a Python program to append to a text file.
4. Write a Python program to count total no of lines in a text file.
5. Write a Python program to copy the content from one file to another file.

Weekly Assignment 47

1. Write a Python program to read from a csv file.
2. Write a Python program to write into a csv file.
3. Write a Python program to count the total no of words in a text file.
4. Write a Python program to search for a word in a text file.
5. Write a Python program to read file line by line.

Weekly Assignment 48

1. Write a Python program to read a binary file.
2. Write a Python program to write into a binary file.
3. Write a Python program to search for a string in a file.
4. Write a Python program to merge the content of two files and print the content in another file.
5. Write a Python program to write a List to a file. Where List size and items are user given input.

Weekly Assignment 49

1. Write a Python program to read file in reverse.
2. Write a Python program to insert a line at the beginning of a file.
3. Write a Python program to insert a line at the end of a file.
4. Write a Python program to convert file content to uppercase.
5. Write a Python program to conveprt file content to lowercase.