**Assignment Content**

1. **Assignment 1:**
2. WAP Hello world.
3. WAP Name, address, qualification
4. WAP Add two numbers
5. WAP take input from user & add two numbers.
6. Distance between two cities in km. Print the distance in meter, feet, inches & centimeter.
7. Take input from user for radius and side of square WAP to print perimeter and circumference.
8. Paper of size A0 has dimension 1184mm\*841mm. Each subsequent size A(n) is defined as A(n-1) cut in parallel to its shorter side. Thus paper of size A1 would have dimension 841mm\*594mm WAP to calculate & print paper sizes A0, A1, A3…………..A8.
9. Print the address of a variable.
10. Take a character input from user & print its ASCII Value.
11. WAP to reverse the number, take input from user.
12. WAP to add the digits of a fivedigit number.
13. Consider a currency system in which there are notes of seven denominations, namely Rs1, Rs2, Rs5, Rs10, Rs20, Rs50, Rs100. If a sum of Rs N is entered through keyboard, write a program to compute the smallest number of notes that will combine to give Rs N. (While Demonstrating output, give two set of inputs).
14. **Assignment 2:**
15. WAP to take check if the triangle is valid or not. If the validity is established, do check if the triangle is isosceles, equilateral, right angle, or scalene. Take sides of the triangle as input from a user.
16. WAP to compute the BMI Index of the person and print the BMI values as per the following ranges. You can use the following formula to compute BMI= weight(kgs)/Height(Mts)\*Height(Mts).
17. WAP to check if three points (x1,y1), (x2,y2) and (x3,y3) are collinear or not.
18. According to the gregorian calendar, it was Monday on the date 01/01/01. If Any year is input through the keyboard write a program to find out what is the day on 1st January of this year.
19. WAP using ternary operator, the user should input the length and breadth of a rectangle, one has to find out which rectangle has the highest perimeter. The minimum number of rectangles should be three.
20. **Assignment 3:**
21. WAP to enter numbers till the user wants. At the end, it should display the count of positive, negative, and Zeroes entered.
22. WAP to print the multiplication table of the number entered by the user. It should be in the correct formatting.
23. The population of a town is 100000. The population has increased steadily at the rate of 10% per year for the last 10 years. Write a program to determine the population at the end of each year in the last decade.
24. **Assignment 4:**
25. WAP for printing Fibonacci sequence. Take input from the user to print up to a certain limit.
26. WAP to swap two variables without using a third variable, depict the same using call by value concept.
27. A positive integer is entered through the keyboard. Write a Function to print the prime factors of this number.
28. **Assignment 5:**

## WAP to implement the following scenarios. Take all the input from user, nothing should be imagined or hard coded.

## Transpose of a matrix.

* Check if a matrix is Symmetrical or not.

1. WAP to merge two arrays and append them in the following order.

* Add the first array to the end of another one
* Add Second Array to the end of the first one
* Merge the arrays and sort them.

1. WAP using pointers to find the smallest number in an array using pointer.
2. WAP which performs following task.

* Initialize an integer array of 10 elements in main()
* Pass the entire array to a function modify()
* In modify() multiply(you can use division, addition or subtraction) each element of array by 3
* Return the control to main() and print the new array elements in main().

1. **Assignment 6:**
2. A record contains the name of a cricketer, his age, the number of tests matches he has played, and the average runs he scored in each test match. Create an array of structures to hold records of 20 such cricketers and then write a program to read these records and arrange them in ascending order by runs, Use the qsort standard library function.
3. WAP to count the number of occurrences of any two vowels in succession in a line of text. For example, in the following sentence "Please read this application and give me gratuity". such occurrences, ea, ea and ui.
4. WAP to receive an integer and printout the number in words. For example, if the number is 5678, it should print Five thousand six hundred and seventy-eight.
5. **Assignment 7:**
6. WAP to demonstrate the union's effectiveness over structure. You can use any previously given structure program to depict the idea.
7. WAP to demonstrate the various run-time memory allocation approaches like
8. Malloc
9. Calloc
10. Free
11. Realloc

For implementing this, make use of array, function, and wherever necessary pointer.

1. **Assignment 8:**
2. Write code to implement Stack Data structures. Implement the Push and Pop operation in the stack.
3. Kindly use the stack data structure to reverse a number/string and if the number is a palindrome, print that number/string.
4. **Assignment 9:** WAP to implement the following scenarios.

* Create Queue
* Perform Enqueue and Deque operations on Queue.
* Traverse the queue and print its element.
* Print underflow and overflow when desired conditions are not met.
* Reverse the elements of Queue using recursion.

1. **Assignment 10:** WAP to populate an array of 'n' elements using a random function. Share the time complexity for all the experiments, n should be large enough to see the difference in execution.

* Implement Insertion sort in the above data set.
* Implement Selection sort in the above data set.
* Implement Merge Sort using the above dataset.
* Implement Quicksort in the above data set.

1. **Assignment 11:** Kindly use the following link for making submission related to binary tree.

* WAP to create a tree with a given inputs from user.
* WAP to write the inorder,pre-order and post order traversal.
* WAP to insert element at desired locations.
* WAP to delete the elements from tree, take input from the user for deleting the entries from trees.
* WAP to check for the key elements in node, if the node has multiple of 3, replace it with 5 or if Key elements has any vowel element, replace those with 'Z'.

1. **Assignment 12:**
2. WAP to check for the smallest and largest subarrays in an array whose sum is 15. Generate the array randomly. Implement hashing and linear probing to avoid collision in a given set of keys.
3. WAP to implement the functionality of double hashing.
4. **Assignment 13:** WAP to implement the following scenarios.

* Graph representation using adjacency matrix and adjacency list.
* Graph traversal (BFS and DFS), write the path traversed for the non-weighted graph.
* Implement Minimum Spanning Tree( Prim+Kruskal) for a weighted graph, and implement the same using both the adjacency matrix and list.

1. **VIVA 1**: Print a pattern of numbers from 1 to n as shown below. Each of the numbers is separated by a single space.
2. **VIVA 2:** Create a linked list with the following records, name, age, and place. Search for the place, if the place is Delhi, replace it with New Delhi. Delete the entries where the age is greater than 90 years.
3. **VIVA 3:** Write a C program

* Check if the given Binary tree is BST or not. \*
* For a given binary search tree, print the in-order traversal. \*
* For a given Binary tree, print the leaf nodes of the tree. \*
* For the given BST, print the sum of all the nodes.
* For a given BST, check if the tree is a complete binary tree or not, and use the balance factor to determine it.
* In a BST Insert element at a specified location.
* Delete the root node from BST for a given input. \*