Programming Logic and Techniques

1. Write a pseudo code to accept principle, rate of interest and time. Calculate simple interest and display the same.

2. Write a pseudo code to accept two numbers. Display the two numbers. Swap the two numbers and display them again.

3. Write a pseudo code to accept a number and display whether it is an even or odd number.

4. Write a pseudo code to accept a double value. Separate the whole value from the fractional value and store them in two variables. Display the same.

5. Write a pseudo code to accept a student's name and scores in three subject. Display the average and total. Display whether the student has secured 1st, 2nd, pass class or has failed. 1st class is for a score of 60 and above, 2nd is for a score of 50 and above, while pass class is for a score of 35 and above. If the score is less than 35, then the student fails.

6. Write a pseudo code to find the largest and second largest of 3 numbers.

7. Write a pseudo code to accept name, empId, basic, special allowances, percentage of bonus and monthly tax saving investments. The gross monthly salary is basic + special allowances. Compute the annual salary. The gross annual salary also includes the bonus. Compute the annual net salary, by deducting taxes as suggested.
Income upto 1 lac – exempted
Income from 1 to 1.5 lac – 20%
Income from 1.5 lac onwards – 30%
However if there is any tax saving investment, then there is further exemption of upto 1 lac annually. This would mean that by having tax saving investments of about 1 lac, an income of 2 lacs is non-taxable. Display the annual gross, annual net and tax payable.

8. A vendor offers software services to a client. Each resource is billed at some dollar rate per hour. The total cost of the project for the client is therefore, the total number of hours contributed by all the vendor resources * the dollar rate / hour. There are however some variants.
The vendor might have purchased hardware/infrastructure or software licenses needed for the project.
The vendor might have utilized external consultants for the project.
The client looks at the vendor as a one-stop solution and hence external resources employed by the vendor need to be paid by the vendor.
It might however be possible that the vendor's hardware and software purchases are borne by the client. In this case, the client pays the vendor 30% of the hardware/infrastructure costs. In case of software licenses, the client pays the vendor 50% of the cost, if they are commonly available and used, or 100% if the software is infrequently used or is proprietary client technology.
The external consultants employed by the vendor will come at a dollar rate per

hour.
Accept the suitable inputs and display the profits / loss realized by the vendor.

9. Write a pseudo code to find the sum of all odd numbers from 1 to N. Accept N. Display the sum.

10. Write a pseudo code to find the reverse of a number. Store the reverse value in a different variable. Display the reverse.

11. Write a pseudo code to display a number in words.
Ex. 270176
Output: Two Seven Zero One Seven Six

12. Write as many pseudo codes to generate the following series. In all the following cases, accept N:
4, 16, 36, 64, … N
1, -2, 3, -4, 5, -6, … N
1, 4, 27, 256, 3125, … N
1, 4, 7, 12, 23, 42, 77, … N
1, 4, 9, 25, 36, 49, 81, 100, … N
1, 5, 13, 29, 49, 77, … N

13. Write a pseudo code to find the sum of all the prime numbers in the range n to m. Display each prime number and also the final sum.

14. Write a pseudo code to find the factorial of a given number. 0! is always 1. Factorial of a negative number is not possible.

15. Write a pseudo code to accept a decimal number. Display it in the binary form.

16. Write a pseudo code to accept a binary number and display it in the decimal form.

17. Write a pseudo code to display the 1st , 2nd , and 4th multiple of 7 which gives the remainder 1 when divided by 2,3,4,5 and 6.

18. Write a pseudo code to find Xn (x to the power of n). Accept X and n. Display the result.

19. Write a pseudo code to display the reverse of a string.

20. Write a pseudo code to check if the string is a palindrome.