**Basic Programs**

**Chapter I**

* 1. Find Simple Interest for the following values SI = PTR/100 P=1000 T=2 R = 3
  2. The length & breadth of a rectangle and radius of a circle are input through the keyboard. Write a program to calculate the area & perimeter of the rectangle, and the area & circumference of the circle.
  3. Implement a Product Application(Use all 8 data types)
  4. If the marks obtained by a student in five different subjects are input through the keyboard, find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum marks that can be obtained by a student in each subject is 100
  5. Two numbers are input through the keyboard into two locations C and D. Write a program to interchange the contents of C and D (Using E Location & without Using E Location)
  6. Murali’s basic salary is input through the keyboard. His dearness allowance is 40% of basic salary, and house rent allowance is 20% of basic salary. Write a program to calculate his gross salary.

**Conditional Statements :**

1. If cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss. Also determine how much profit he made or loss he incurred.
2. Any integer is input through the keyboard. Write a program to find out whether it is an odd number or even number
3. Given the length and breadth of a rectangle, write a program to find whether the area of the rectangle is greater than its perimeter. For example, the area of the rectangle with length = 5 and breadth = 4 is greater than its perimeter.
4. Any character is entered through the keyboard, write a program to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol.(use ascii values)
5. An Insurance company follows following rules to calculate premium.

(1) If a person’s health is excellent and the person is between 25 and 35 years of age and lives in a city and is a male then the premium is Rs. 4 per thousand and his policy amount cannot exceed Rs. 2 lakhs.

(2) If a person satisfies all the above conditions except that the sex is female then the premium is Rs. 3 per thousand and her policy amount cannot exceed Rs. 1 lakh.

(3) If a person’s health is poor and the person is between 25 and 35 years of age and lives in a village and is a male then the premium is Rs. 6 per thousand and his policy cannot exceed Rs. 10,000. (4) In all other cases the person is not insured. Write a program to output whether the person should be insured or not, his/her premium rate and maximum amount for which he/she can be insured

6. A certain grade of steel is graded according to the following conditions:

(i) Hardness must be greater than 50

(ii) Carbon content must be less than 0.7

(iii) Tensile strength must be greater than 5600 The grades are as follows:

Grade is 10 if all three conditions are met

Grade is 9 if conditions (i) and (ii) are met

Grade is 8 if conditions (ii) and (iii) are met

Grade is 7 if conditions (i) and (iii) are met

Grade is 6 if only one condition is met

Grade is 5 if none of the conditions are met

Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.

1. A library charges a fine for every book returned late. For first 5 days the fine is 50 paise, for 6-10 days fine is one rupee and above 10 days fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or the appropriate message.
2. A university has the following rules for a student to qualify for a degree with A as the main subject and B as the subsidiary subject:

(a) He should get 55 percent or more in A and 45 percent or more in B.

(b) If he gets less than 55 percent in A he should get 55 percent or more in B. However, he should get at least 45 percent in A.

(c) If he gets less than 45 percent in B and 65 percent or more in A he is allowed to reappear in an examination in B to qualify.

(d) In all other cases he is declared to have failed. Write a program to receive marks in A and B and Output whether the student has passed, failed or is allowed to reappear in B.

**Chapter II**

1. Print “ Coding Hub “ in the same line for 10 times
2. Print “ Java “ and “Programming” in separate lines for 100 times
3. Write a program to find the factorial value of any number entered through the keyboard(Use both forward / backward Iteration).
4. A university has the following rules for a student to qualify for a degree with A as the main subject and B as the subsidiary subject:
   * 1. He should get 55 percent or more in A and 45 percent or more in B.
     2. If he gets than 55 percent in A he should get 55 percent or more in B. However, he should get at least 45 percent in A.
     3. If he gets less than 45 percent in B and 65 percent or more in A he is allowed to reappear in an examination in B to qualify.
     4. In all other cases he is declared to have failed. Write a program to receive marks in A and B and Output whether the student has passed, failed or is allowed to reappear in B
5. An Insurance company follows following rules to calculate premium.
   * 1. If a person’s health is excellent and the person is between 25 and 35 years of age and lives in a city and is a male then the premium is Rs. 4 per thousand and his policy amount cannot exceed Rs. 2 lakhs.
     2. If a person satisfies all the above conditions except that the sex is female then the premium is Rs. 3 per thousand and her policy amount cannot exceed Rs. 1 lakh.
     3. If a person’s health is poor and the person is between 25 and 35 years of age and lives in a village and is a male then the premium is Rs. 6 per thousand and his policy cannot exceed Rs. 10,000. In all other cases the person is not insured. Write a program to output whether the person should be insured or not, his/her premium rate and maximum amount for which he/she can be insured

**Chapter III**

1. Write a program to find the range of a set of numbers. Range is the difference between the smallest and biggest number in the list.
2. Write a program to find the sum of first ‘n’ natural numbers (value of ‘n’ entered through the keyboard Use both forward / backward Iteration).
3. Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another
4. Write a program to print all prime numbers from 1 to 300
5. Write a program to print the multiplication table of the number entered by the user. The table should get displayed in the following form. 29 \* 1 = 29 29 \* 2 = 58
6. Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not.
7. Write a program to find the factorial value of any number entered through the keyboard.
8. Write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros entered.
9. Write a program to find the factors of a number.
10. Write a program to print the Fibonacci series
11. Write a program to reverse a number.
12. Write a program to find the largest & smallest of three numbers
13. Write a program to find whether a number is Armstrong or not
14. Write a program to find whether a number is palindrome or not.
15. If a five-digit number is input through the keyboard, write a program to print a new number by adding one to each of its digits. For example if the number that is input is 12391 then the output should be displayed as 23402.
16. A cashier has currency notes of denominations 10, 50 and 100. If the amount to be withdrawn is input through the keyboard in hundreds, find the total number of currency notes of each denomination the cashier will have to give to the withdrawer.
17. Write a program to find the largest & smallest of three numbers
18. If a four-digit number is input through the keyboard, write a program to obtain the sum of the first and last digit of this number.
19. 479 Add 1 to each number if the resultant is 10 after adding replace it with 0 and the Output number is : 580
20. Write a java program to print the prime numbers alternatively until a specific range

2 5 11 17 23 31

**Chapter IV**

**(Use Scanner &classes, Methods &Objects)**

1. Write a program to find the factorial value of any number entered through the keyboard.
2. Write a program to find the factors of a number.
3. Write a program to print the Fibonacci series
4. Write a program to reverse a number.
5. Write a program to find whether a number is Armstrong or not
6. Write a program to find whether a number is palindrome or not.