Sunbeam Institute of Information Technology

Preparatory Assignments

Programming Assignments

Q1. Write a program to input n numbers on command line argument and calculate maximum of them.

Q2. Write a program to calculate a Factorial of a number.

Q3. Write a program to calculate Fibonacci Series up to n numbers

Q4. Write a program to calculate the grade of a student. There are five subjects. Marks in each subject are entered from keyboard. Assign grade based on the following rule:

Total Marks >= 90	Grade: Ex
90 > Total Marks >= 80	Grade: A
80 > Total Marks >= 70	Grade: B
70 > Total Marks >= 60	Grade: C
60 > Total Marks	Grade: F

Q5. Write a program to check the input characters for uppercase, lowercase, number of digits and other characters. Display appropriate message.

Q6. Write a program to perform matrix multiplication.

Q7. Write a program to accept a number from user using command line e argument and display its table.

Q8. Write a program to read the name of a student (studentName), roll Number (rollNo) and marks (totalMarks) obtained. rollNo may be an alphanumeric string. Display the data as read. Hint: Create a Student structure and write appropriate functions.

Q9. Accept an integer number and when the program is executed print the binary, octal and hexadecimal equivalent of the given number.

Sample Output:

```
Enter Number : 20
Given Number :20
Binary equivalent :10100
Octal equivalent :24
Hexadecimal equivalent :14
```

Preparatory Assignments

Hint: Use bitwise operators for binary conversion. Octal/Hexadecimal conversion to be done by repetitive division using recursion.

Q10. Read at most 10 names of students and store them into an array of char nameOfStudents[10][50]. Sort the array and display them back. Hint: Use qsort() method.

Q11. Create a structure called Employee that includes three fields - a first name (type String), a last name (type String) and a monthly salary (double). Write functions to initialize the fields, print them and modify the values in the given object. Example methods:

- void emp_init(struct emp* e);
- void set_salary(struct emp *e, double sal);
- void emp_display(struct emp *e);

Write the test code in the main(). Create two emp objects and display each object's yearly salary. Then give each Employee a 10% raise and display each Employee's yearly salary again.

Q12. Write a Program to reverse the letters present in the given String. Do not use strrev() function.

Q13. Declare an Array of type char* (Strings) and initialize it with a few strings (hard-coded). Display the strings which are duplicated in that array. (Hint: use strcmp())

Q14 Write a code to check if string is palindrome.

Q15. Input a string from the user. Count occurrences (case insensitive) of each alphabet in the string.

Sample output:

Input: Welcome to SunBeam.
Output:
A : 1
B : 1
C : 1
E : 3
L : 1
M : 2
N : 1
O : 2
S : 1
T : 1
U : 1
W : 1