GE7161 Computer Practices Lab 2017
Geo Informatics

Ex.1: Problem Design using Word Processor

Ex.2: Problem Solving using Spreadsheets

Ex.3: Programs using print statements and mathematical calculation

1. Write a program to demonstrate arithmetic operation.
2. Write a program to convert celsius to fahrenheit.
   - **Formula:** fahrenheit = celsius * 1.8 + 32.
3. Write a program to find the simple and compound interest.
   - **Formula:** simple interest: (p*n*r) / 100
   - Compound interest: p*pow((1+r/100),n)
4. Write a program to calculate the power of given value.
5. Write a program to find the area of circle.
   - **Formula:** area of circle = pie * pow(r,2)
   - Note: pie value is 3.14

Ex.4: Programs using *if* statement

1. Write a program to find the biggest number among 3 numbers using if else statement.
2. Write a program to calculate the electricity bill using if else statement.
   - If a unit consumed is below 100, cost per unit is rs. 2.50.
   - If unit consumed is between 100 to 250 cost per unit is rs. 4.00.
   - If unit consumed is above 250 cost per unit is rs 5.00
3. Write a program to calculate the grade of the student, given the mark.
   - If mark is equal to and above 90, grade is “s”.
   - If mark is between 80 and 89, grade is “a”(inclusive of both limits).
   - If mark is between 70 and 79, grade is “b” (inclusive of both limits).
   - If mark is between 60 and 69, grade is “c” (inclusive of both limits).
   - If mark is between 50 and 59, grade is “d” (inclusive of both limits).
   - If mark is below 50, then the grade is “u”.
4. Write a program to find the maximum and minimum number from a given set of numbers.
5. Write a program to calculate gross pay and net pay based on the following condition.
   - If basic pay is > 15000 then hra is 10% of basic pay else 5% of basic pay.
   - dearness pay = 10% of basic pay.
   - dearness allowance = 18% of (basic pay + dearness pay).

- cca = 500, ma = 200, gpf = 20% 0f (basic pay + dearness pay).
- fbf = 10% of (basic pay + dearness pay), it = 700.
- gross pay = basic pay + dearness pay + dearness allowance + hra + cca + ma.
- deductions = gpf + fbf + it.
- net pay = gross pay – deductions.

Ex.5: Programs using *for* control structure

1. Write a program to find the factorial of a number.
2. Write a program to generate the powers of n. (2 * 2 = 4 . . . . . N * n = n)
3. write a program to generate fibonacci series up to n terms. (0,1,1,2,3,5,8...n)
4. Write a program sum up the series as 1+1/2+1/3+..
5. Write a program to print the number in following pattern.

```
1
1   2
1   2   3
```

6. Write a program to print the number in following pattern.

```
      *
    *   *
  *   *   *
```

7. Write a program to generate odd and even numbers within a set of limits.
8. Write a program to generate prime numbers within a set of limits.
9. Write a program to print the expanding hollow square box. The minimum and maximum dimensions shall be received from the user.
10. Write a program to find the sum of the series (1/3+2/5+3/7...n terms)

Ex.6: Programs using *while* statement

1. Write a program to find the reverse of a given number and hence to check whether it is a palindrome number or not.
2. Write a program for a match-stick game between the computer and a user, /your program should ensure that the computer always wins. Rules for the game are as follows:
   - There are 21 match-sticks.
   - The computer asks the player to pick 1,2,3, or 4 match-sticks.
   - After the person picks, the computer does its picking.

- Whoever forced to pick up the last match-stick loses the game.

3. Write a program to print the 2-way multiplication table.
4. Write a program to raise a number to a given power using while statement.
5. Write a program to generate all the Armstrong number within a range.

Ex.7: Programs using *Switch Case* statement

1. Write a program to implement a simple calculator using switch case.
2. Write a program to print the day of the week given the number of the day (use switch case.
3. Write a program to
   - To check whether a given number is Armstrong or not.
   - To calculate the factorial of a number.
   - To check whether the given two numbers are equal or not.
   - To check whether a given number is prime or not, using switch case.

Ex.8: Programs using *Array*

1. Write a program to search for a target element in an array. Also, print the position of the target element in the array if found
2. Write a program to find the frequency (number of occurrences) of each element in a given array.
3. Write a program to multiply two matrices.
4. Write a program to rotate a given matrix clockwise by 90,180, 270 degree
5. Write a program to sort the number using bubble sort.
6. Observe the following acrostic:

   ROTAS
   OPERA
   TENET
   AREPO
   SATOR

   This in latin means “Arepo the sower hold the wheels with force”. Observe that the acrostic is the same whether read horizontally or vertically, from the top or bottom. Write a program to read in 5 x 5 acrostic and check whether it reads the same horizontally or vertically, from the top or bottom

Ex.9: Programs using *Strings*

1. Write a program to convert lower case into upper case.
2. Write a program to count number of vowels in a given string.
3. Write a program to check whether the given string is palindrome or not.
4. Write a program to find the count of characters, words and lines.
5. Write a program to sort the given strings in alphabetical order.

Ex.10: Programs using *Functions* and *Pointers*

1. Write a C program using functions to do the following operations in a given sentence
   - To reverse a string
   - To count the number of characters
   - To count the number of words
   - To count the number of vowels and consonants
   - To convert the lowercase characters to uppercase
2. Write a menu driven C program using functions to print the user specified series within the given limits. The menu should be as follows:
   - Palindrome Numbers
   - Prime Numbers
   - Palindromic Prime Numbers
   - Armstrong Numbers
   - Quit
3. Write a program to find the transpose of a given matrix using function.

Ex.11. Programs using Structures

1. Write a program using structures to maintain the details of students of a class like name, age, CGPA, date of birth and also performs the following
   - Displays the eldest and youngest student in the class
   - Displays the student with the highest and lowest CGPA
2. Write a program using structures to maintain the details of books in library like title, author name, edition, category, publisher, isbn, price and status of the boo