Introductory Computing

Practice Exercises

1. Write a C program that would allow the user to enter the scores obtained by the students in a class, and would provide the following information- highest score, lowest score, average score. Assume that there can be at most 100 students in the class.

Through C programs learn

2. All the operators and their precedence and associativity. (Particularly, the ternary conditional operator (?:) the bitwise operators and the logical operators.)
3. Storage classes – *automatic* and *static*, and storage class specifiers – *auto*, *register*, *static*, *extern* and *typedef*.
4. Type specifiers- *void, char, short, int, long, float, double, signed, unsigned*, struct-or-union-specifier, *enum* and typedef-name.
5. Type qualifiers- *const* and *volatile*.
6. Which header files are required for which functions- stdlib.h, math.h, string.h, etc.
7. Use of function pointers.
8. The different conversion formats for *printf*.
9. The other forms of *scanf* and *printf* functions- *fscanf, sscanf, fprintf* and *sprintf*.
10. The *fgets* and *fputs* functions.

11. Write a C program to determine the number of bytes in the different types of values, such as int, long int, short, etc.
12. Write a C program to print the bit sequence in a given variable of type int and float for positive and negative values.
13. Write a C program to swap two variables.
14. Write a C program to reverse a string.
15. Write a C program to search a number in an array of numbers.
16. Write a C program to sort numbers in an array.
17. Write a C program to compute Fibonacci numbers (F0=0, F1=1, Fn=F(n-1)+F(n-2)).
18. Write a C program to compute sin(x). [sine(x) = $x - (1/3!)x^3 + (1/5!)x^5 – (1/7!)x^{7\cdots}$]
19. Write a C program to open a file, write a text line and close it. Then open the file, read the contents, toggle upper and lower case and print on the terminal, and close the file.
20. Write a C program to write and read back *struct* records using files (*fread* and *fwrite* functions).
21. Write a C program to implement a linked list- create, insert, search, and delete operations.
22. Write a C program to compute the balance of a recurring-deposit account.
23. Write a C program to implement the trapeziodal rule for computing the area under a curve given by a function.