1806ICT Programming Fundamentals

Pointers and File IO

1. Write a C program that performs each of the following tasks:
   (a) Declare and initialise next to be a character variable with the value 'B'.
   (b) Declare and initialise current to be a character variable with the value 'y'.
   (c) Declare ptr to be a pointer to objects of type char.
   (d) Assign the address of current to the variable ptr.
   (e) Change the value of the object pointed to by ptr to '0'.
   (f) Assign the address of next to the variable ptr.
   (g) Change the value of the object pointed to by ptr to 'd'.
   (h) Print the address stored in ptr.
   (i) What values are stored in next and current?

2. Given these declarations:

```
int x=0;
int y=0;
int* myPtr=NULL;
int* otherPtr=NULL;
```

   Write a C program to determine the values of myPtr, otherPtr, x, and y, after each of the following lines of code:

   (a) myPtr=&x;
   (b) otherPtr=&y;
   (c) *myPtr=4;
   (d) *otherPtr=*myPtr;
   (e) x=5;
   (f) otherPtr=myPtr;
   (g) *otherPtr=6;

3. Write a program using pointers that:
   a. Takes as input (on the command line) a value n;
   b. Creates two square 2D arrays of size n / 2;
   c. Populates each row with ascending random numbers;
   d. Creates a third 2D array by multiplying the two 2D arrays (like matrices);
   e. Prints the contents of the third 2D array;

4. Write a program that counts the number of words and characters in the file *dictionary.txt.*
5. Write a program to delete all the words containing more than one vowel from the file *dictionary.txt*.