Lab 7 – Submit Task 7.3 and Task 7.4 as a part of assignment 2.

Task 7.1 Find the error

Find the error in each of the following program segments and correct the error:

a) `#include <iostream>;`

b) `arraySize = 10; // arraySize was declared const`

c) Assume that
```
int b[ 10 ] = {};
    for ( int i = 0; i <= 10; i++ )
        b[ i ] = 1;
```

d) Assume that
```
int a[ 2 ][ 2 ] = { { 1, 2 }, { 3, 4 } };
        a[ 1, 1 ] = 5;
```

e)
```
double cube(float );    /*function prototype*/
...
cube(float number ) /*function prototype*/
{
    return number*number *number;
}
```

f)
```
double y =123.45678;
int x;
x = y;
cout<<(double)x;
```

g)
```
double square(double number )
{
double number;
```

```
        return number *number;
    }
h)  double f[ 3 ] = { 1.1, 10.01, 100.001, 1000.0001 };
```

Task 7.2 Use a single-subscripted array to solve the following problem. Read in 20 numbers, each of which is between 0 and 99, inclusive. As each number is read, print the number and indicate 'duplicate number' if it is a duplicate number. After all 20 numbers have been entered; call a function to print out the most frequent number in the array.
[Sample solution is available in Canvas]

Task 7.3 (Need to submit as a part of assignment 2)

Create a one-dimensional array to read 20 alphabetical letters (your program should be able to detect and print out an error message if a non-alphabetical letter is entered). As each letter is entered, print a message saying 'duplicate letter' if the letter is already in the array. Write a function that can sort the array after all 20 letters have been entered. Write another function that print out the most frequent letter and number of times it was entered. Prepare for the case where all 20 letters are different, or all are the same. [Refer to sample solution given for Task 7.2]

Sample output:

Task 7.4 (Need to submit as a part of assignment 2)

A survey to know the popularity of four cricket players (Ricky Ponting, Shane Warne, Donald Bradman and Glenn McGrath) was conducted in four cities (Melbourne, Sydney, Brisbane and Adelaide). Each person surveyed was asked to give his city and the name of his favorite player. The results, in coded form, are tabulated as follows:

```
M 1  S 2  B 1  B 3  M 2  B 4
S 1  A 3  M 4  B 2  B 1  S 3
B 4  B 4  M 1  M 1  B 3  B 3
S 1  S 1  S 2  M 4  M 4  S 2
A 1  S 2  B 3  M 1  B 1  S 2
A 3  M 4  S 1  B 2  M 3  B 4
```

Codes represent the following information:

M - Melbourne	1 - Ricky Ponting
S – Sydney	2 - Shane Warne
B – Brisbane	3 - Donald Bradman
A – Adelaide	4 - Glenn McGrath

Write a program to produce a table showing popularity of various players in four cities.

A two-dimensional array frequency is used as an accumulator to store the number of particular player in each city. For example, the element frequency [i][j] denotes the number of a particular player j in city i. The frequency is declared as an array of size 5x5 and all the elements are initialized to zero

Sample Output

```
 For each entry, enter the city code
 followed by the person code.
 Enter the letter X to indicate end.

M 1  S 2  B 1  B 3  M 2  B 4
S 1  A 3  M 4  B 2  B 1  S 3
B 4  B 4  M 1  M 1  B 3  B 3
S 1  S 1  S 2  M 4  M 4  S 2
A 1  S 2  B 3  M 1  B 1  S 2
A 3  M 4  S 1  B 2  M 3  B 4  X

            POPULARITY TABLE
 -------------------------------------------------------
```

City	Ricky Ponting	Shane Warne	Donald Bradman	Glenn McGrath
Melbourne	4	1	1	4
Sydney	4	5	1	0
Brisbane	2	2	4	4
Adelaide	1	0	2	0

```
 -------------------------------------------------------
```