Solution to Exercises in L#21

Solution to Exercise (1) on Slide 11

- True or false

  ___T___ all elements of a given array have the same data type

  ___F___ all elements of a given array are placed randomly in computer's memory (contiguously)

  ___F___ the index of the first element of an array is 1 (0)

Solution to Exercise (2) on Slide 12

- Find error(s), if any, in the following statements:
  - int a, b(6);   int a, b[6];

  - float a23b[99], 1cd[77];   float a23b[99], cd1[77];

  - void city[32], town[73];   C arrays cannot be of void type!

  - double temperature[-70];   double temperature[70]; size should be >0

  - long phone[300]; /*The first and the last array elements in the array just defined are phone[1] and phone[300]*/

    phone[0], phone[299]

Solution to Exercise (3) on Slide 16

- Find error(s), if any, in the following statements:
  - int a[3]: 11, 22, 33; int a[3] = {11, 22, 33};

  - int a={11,22}, b[20]; int a[]={11,22}, b[20]; or
    int a[2]={11,22}, b[20];

  - float a[3]={23, 34, 45, 56}; float a[3]={23, 34, 45};

  - double d(4)= (11, 22, 33, 44); double d[4]= {11, 22, 33, 44};

  - a[4] = {11, 22, 33, 44}; Must show the array data type!

Example: Printing An Array /Outputting Values (Slide 20)

```c
#include "stdio.h"
#define array_size 5
#define my_const 70

int main(void)
{
    int myarray[array_size];

    for (int i=0; i < array_size; i++)
    {
            myarray[i] = i*my_const;
            printf("myarray[%d] is :%d\n", i, myarray[i]);
    }

    return 0;
}
```

What is the output of the program?

myarray[0] is 0
myarray[1] is 70
myarray[2] is 140
myarray[3] is 210
myarray[4] is 280

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Solution to Exercise (4) on Slides 21-22

```c
#include "stdio.h"
#define array_size 10
void main(void)
{
        int myarray[array_size];
        int max = -100;
        int i = 0;

        for (i = 0; i < array_size; i++)
        {
                printf("Enter array member  %d\n", i);
                scanf_s("%d", &myarray[i]);
                if (myarray[i] > max)
                max = myarray[i];
        }
        printf("The largest array member is: %d\n", max);
}
```

Limitation of this program: it won't work when all the array elements <-100.

Improved Solution to Exercise (4) on Slides 21-22 without the limitation

```c
#include "stdio.h"
#define array_size 10
void main(void)
{
    int myarray[array_size];
    int max;
    int i = 0;

    printf("Enter the first array member\n");
    scanf_s("%d", &myarray[0]);
    max = myarray[0];

    for (i = 1; i < array_size; i++)
    {
        printf("Enter array member  %d\n", i);
        scanf_s("%d", &myarray[i]);
        if (myarray[i] > max)
        max = myarray[i];
    }
    printf("The largest array member is: %d\n", max);
}
```

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