

Solution to Exercises in L#23

Slide 7 Example (1): Pass by values

```
#include "stdio.h"
```

```
void add(int number);
```

```
void main(void)
```

```
{
```

```
    int myarray[5] = {1,2,9,3,6};
```

```
    add(myarray[2]);
```

```
    printf("The value of myarray[2] is: %d\n", myarray[2]);
```

```
}
```

```
void add(int number)
```

```
{
```

```
    number = number + 100;
```

```
}
```

What is the output
of the program?

The value of myarray[2] is: 9

Slide 8 Example (2) – Pass by references

```
#include "stdio.h"
```

```
void add(int *number);
```

```
void main(void)
```

```
{  
    int myarray[5] = {1,2,9,3,6};
```

```
    add(&myarray[2]);
```

```
    printf("The value of myarray[2] is: %d\n", myarray[2]);
```

```
}
```

```
void add(int *number)
```

```
{
```

```
    *number = *number + 100;
```

```
}
```

What is the output
of the program?

The value of myarray[2] is: 109

Slide 13 Example (3): Pass by references

```
#include "stdio.h"
```

```
void add(int arr[]);
```

```
void main(void)
```

```
{
```

```
    int myarray[5]= {1,2,9,3,6};
```

```
    add(myarray); /* Pass the whole array to a function */
```

```
    printf("The value of myarray[2] is: %d\n", myarray[2]);
```

```
}
```

```
void add(int arr[])
```

```
{
```

```
    arr[2] = arr[2] + 100;
```

```
}
```

What is the output
of the program?

The value of myarray[2] is: 109

Complete Solution 1 to Exercise (1) on Slide 16

```
/* WITHOUT A FUNCTION */
#include "stdio.h"

void main(void)
{
    int myarray[10];
    int sum = 0;
    int i;

    for(i = 0; i < 10; i++)
    {
        scanf_s("%d",&myarray[i]);
        sum = sum + myarray[i];
    }
    printf("The sum is %d\n", sum);
}
```

Complete Solution 2 to Exercise (1) on Slide 17

```
/* WITH A FUNCTION */
#include "stdio.h"
int sum(int a[]);
void main(void)
{
    int myarray[10];
    int mysum = 0;
    for(int i = 0; i < 10; i++)
    {
        scanf_s("%d",&myarray[i]);
    }
    mysum=sum(myarray);
    printf("The sum is %d\n", mysum);
}
```

```
int sum(int a[])
{
    int s=0;
    for(int i = 0; i < 10; i++)
    {
        s= s+ a[i];
    }
    return s;
}
```

Solution to Exercise (2) on Slides 18, 19

```
#include "stdio.h"
#define arr_size 10
void square(int a[]);
void main(void)
{
    int myarray[arr_size];
    int i;

    for (i = 0; i < arr_size; i++)
    {
        scanf_s("%d", &myarray[i]);
    }

    square(myarray); //call the function

    printf("The squared array elements
    are:\n");

    for (i = 0; i < arr_size; i++)
    {
        printf("%d\n", myarray[i]);
    }
}
```

```
//function definition
void square(int a[])
{
    int j;
    for (j = 0; j < arr_size; j++)
    {
        a[j] = a[j] * a[j];
    }
}
```

Solution to Exercise (3) on Slide 20

- True or false:
 - a) F In a function call, using an array name not followed by brackets as a parameter passes the entire array to the called function by copying each element into the array region of the called function
 - b) T The name of an array, not followed by brackets, indicates the address of the first element of the array