LAB

Arrays

9

WEEK

KEYWORDS:

Array, index, size

LAB EXERCISE:

Program 1:

Type the following program in the editor of the C++ environment. Compile the program and run it.

```
#include<iostream>

using namespace std;

int main()
{
	int item[5]; //Declare an array item of five components
	int sum= 0;
	int counter;

	cout <<"Enter five numbers: ";
	for (counter = 0; counter < 5; counter++)
	{
		cin >> item[counter];
		sum = sum + item[counter];
	}
	cout << endl;

	cout <<"The sum of the numbers is: "<< sum << endl;
	cout <<"The numbers in reverse order are: ";

	//Print the numbers in reverse order.
	for (counter = 4; counter >= 0; counter--)
	{
		cout << item[counter] <<" ";
	}

	cout << endl;
	system("PAUSE");
	return 0;
}
```

Output:

```
Enter five numbers: 1 2 3 4 5

The sum of the numbers is: 15
The numbers in reverse order are: 5 4 3 2 1
```

ASSIGNMENT:

Question 1: What is the output of the following program segment?

```
int temp[5];
for (int i = 0; i < 5; i++)
        temp[i] = 2 * i - 3;

for (int i = 0; i < 5; i++)
        cout << temp[i] << " ";

cout << endl;

temp[0] = temp[4];
temp[4] = temp[1];
temp[2] = temp[3] + temp[0];
for (int i = 0; i < 5; i++)
        cout << temp[i] << " ";

cout << endl;
```

Output:

```
-3 -1 1 3 5
5 -1 8 3 -1
```

Question 2: Suppose list is an array of five components of type int. What is stored inlist after the following C++ code executes?

```
for (int i = 0; i < 5; i++)
{
        list[i] = 2 * i + 5;
        if (i % 2 == 0)
        list[i] = list[i] - 3;
}
```

Output:

```
2 7 6 11 10
```

Question 3: Suppose list is an array of six components of type int. What is stored inlist after the following C++ code executes?

```
list[0] = 5;
for (int i = 1; i < 6; i++)
{
        list[i] = i * i + 5;
        if (i > 2)
        list[i] = 2 * list[i] - list[i - 1];
}
```

Output:

```
5 6 9 19 23 37
```

Question 4: What is the output of the following code?

```
int list[] ={6, 8, 2, 14, 13};

for (int i = 0; i < 4; i++)
        list[i] = list[i] - list[i + 1];

for (int i = 0; i < 5; i++)
        cout << i << " " << list[i] << endl;
```

Output:

```
0 -2
1 6
2 -12
3 1
4 13
```

Question 5: Write a C++ program that declares an array alpha of 50 components of type double. Initialize the array so that the first 25 components are equal to the square of the index variable, and the last 25 components are equal to three times the index variable. Output the array so that 10 elements per line are printed.

Code:

```
#include<iostream>
using namespace std;
int main()
{


  double alpha[50];

        for (int i = 0; i < 50; i++){

                if(i < 25){
                        alpha[i] = i*i;
                }
                else{
                        alpha[i] = 3*i;

                }

          }



        for (int i = 0; i < 50; i++){

                cout<<alpha[i]<<" ";

                if(  (i+1) % 10 == 0  )
                  cout<<endl;

        }


return 0;
}
```