KING SAUD UNIVERSITY
COLLEGE OF APPLIED STUDIES AND COMMUNITY SERVICE

CSC 1101 **First Semester 1436-1437**

Tut # 11 **Instructor:Nada Alhirabi**

Q1. What would be output by the following section of C++?

```
int A[5] = {1 , 2, 3, 4};
int i;
for (i=0; i<5; i++)
{
        A[i] = 2*A[i];
        cout << A[i] << " ";
}
```

output: 2 4 6 8 0

Q2. What is wrong with the following section of program?

```
int A[10], i;
for (i=1; i<=10; i++)
        cin >> A[i]; // A[10] is not part of the array, so we can not assign any value inside it.
```

Q3. Write a program that calculates the sum of the even elements

of the array below.

12	15	16	18	21
[0]	[1]	[2]	[3]	[4]

```
int A[5] = {12 , 15, 18, 21};

int i, sum=0;

for (i=0; i<5; i++)

{

   if(A[i]%2==0) //to see if it is even or not

      sum+=A[i];

}

cout<<sum;
```

Q4. write a program that declares two integer arrays, say with 5 elements each, and carries out the following:

(a) Input some data from the user into the two arrays.
(b) Multiplies the odd values in the array1 by 2.
(c) Adds 2 to each element in the array2 with an even index
(d) Output the sum of the elements in each of the two arrays.
(e) Output the inner product of the two arrays - that is the sum of the products of corresponding elements A[0]*B[0] + A[1]*B[1]+ ....etc.
(f) Return the minimum element in Array 1
(g) Search Array2 for an element entered by the user.

```
int A[5] , B[5];
int i, sum=0;
// (a)  Input some data from the user into the two arrays.
cout<<"please enter array 1 elements: "<<endl;
for(i=0; i<5; i++)
{
cin>>A[i];
}

cout<<"please enter array 2 elements: "<<endl;
for(i=0; i<5; i++)
{
cin>>B[i];
}
//(b)  Multiplies the odd values in the array1 by 2.
for(i=0; i<5; i++)
{
   if(A[i]%2!=0)
      A[i]*=B[i];
}

//(c)  Adds 2 to each element in the array2 with an even index
for(i=0; i<5; i++)
{
   if(i%2==0)
      B[i]+=2;
}
//printing the arrays
cout<<"\nArray 1 elements :";
for(i=0; i<5; i++)cout<<A[i]<<"  ";

cout<<"\nArray 2 elements :";
for(i=0; i<5; i++)cout<<B[i]<<"  ";
```

```
//(d) Output the sum of the elements in each of the two arrays.
int sum1=0, sum2=0;
for (i=0; i<5; i++)
{
        sum1+=A[i];
        sum2+=B[i];
}
cout<<"\nThe sum of array 1: "<<sum1<<"\nThe sum of array2:"<<sum2<<endl;


//(e)Output the inner product of the two arrays - that is the sum of the products of
corresponding elements A[0]*B[0] + A[1]*B[1]+ ....etc.
int inner_product=0;
for (i=0; i<5; i++)
{
    inner_product= inner_product  + (A[i]*B[i]);
}
  cout<<"The  inner product of array 1 and array 2: "<<inner_product<<endl;


//(f)    Return the minimum element in Array 1
int min=A[0];
for (i=0; i<5; i++)
{
    if(A[i]<min)
        min=A[i];
}
cout<<"The minimum element in Array 1: "<<min<<endl;

//(g)Search Array2 for an element entered by the user.
int num,found=0;
cout<<"please enter number you want to search to at array 2 elements: "<<endl;
cin>>num;
for(i=0; i<5; i++)
{
if(B[i]==num) {
        cout<<num <<" is found in array 2"<<endl;
        found=1;
        break;
        }
}
if(found==0)cout<<num <<" is not found in array 2"<<endl;
```

```
please enter array 1 elements:
1 2 3 4 5
please enter array 2 elements:
1 2 3 4 5

Array 1 elements :1  2  9  4  25
Array 2 elements :3  2  5  4  7
The sum of array 1: 41
The sum of array2:21
The  inner product of array 1 and array 2: 243
The minimum element in Array 1: 1
please enter number you want to search to at array 2 elements:
4
4 is found in array 2
```

Q4. Given the following 2 arrays : x[ ]={2,7, 5 , 9 } and y[ ]={ 1, 4, 3,2}

(a) Sort array x in descending order and array y in ascending order, and display the two arrays.
(b) Multiply the two arrays and put the result in a third array z.

```
Array x elements in descending order :9  7  5  2
Array y elements in ascending order :1  2  3  4
Array z elements= array x * array y: 9 14 15 8
Array z elements in reverse order: 8 15 14 9
```

(c) Display the values of array z in reverse order .

```
 int x[ ]={2,7, 5 , 9 } ,y[ ]={ 1, 4, 3,2}  ;
  int outer, inner;
//a) Sort array x in descending order and array y in ascending order
 //bubbleSort  for descending (largest to smallest)
  for (outer =4-1; outer > 0; outer--) {  // counting down
    for (inner = 0; inner < outer; inner++) {       // bubbling up
      if (x[inner] < x[inner + 1]) {  // if out of order...
        int temp = x[inner];         // ...then swap
        x[inner] = x[inner + 1];
        x[inner + 1] = temp;
      }
    }
  }
  cout<<"\nArray x elements in descending order :";
for(int i=0; i<4; i++)cout<<x[i]<<"  ";

   //bubbleSort  for descending (smallest to largest)
  for (outer =4-1; outer > 0; outer--) {  // counting down
    for (inner = 0; inner < outer; inner++) {       // bubbling up
      if (y[inner] > y[inner + 1]) {  // if out of order...
        int temp = y[inner];         // ...then swap
        y[inner] = y[inner + 1];
        y[inner + 1] = temp;
      }
    }
  }
cout<<"\nArray y elements in ascending order :";
for(int i=0; i<4; i++)cout<<y[i]<<"  ";

//(b)     Multiply the two arrays and put the result in a third array z.

int z[]={};
for(int i=0; i<4; i++)z[i]=x[i]*y[i];
cout<<"\nArray z elements= array x * array y: ";
for(int i=0; i<4; i++)cout<<z[i]<<" ";

//(c) Display the values of array z in reverse order
int temp=0;
for(int i=0, j=4-1; i<4/2; i++,j--){//4 is the length
        temp = z[i];         // ...then swap
        z[i] = z[j];
        z[j] = temp;
}

cout<<"\nArray z elements in reverse order: ";
for(int i=0; i<4; i++)cout<<z[i]<<" ";
```