## Code: Merging two sorted array in a sorted manner:

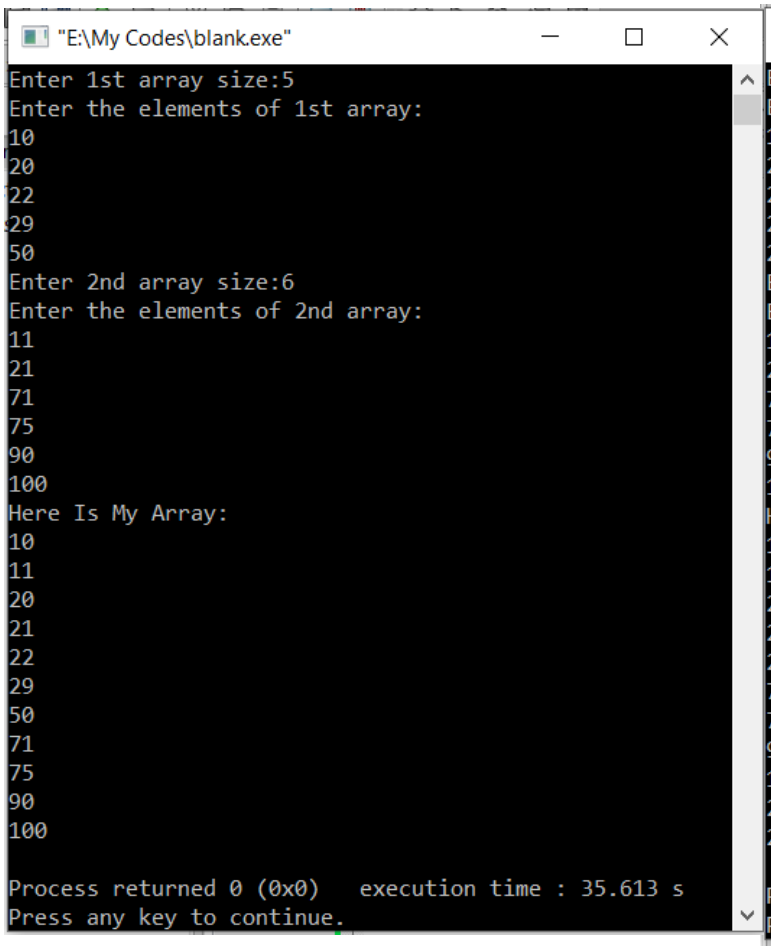
**This was my original code:**

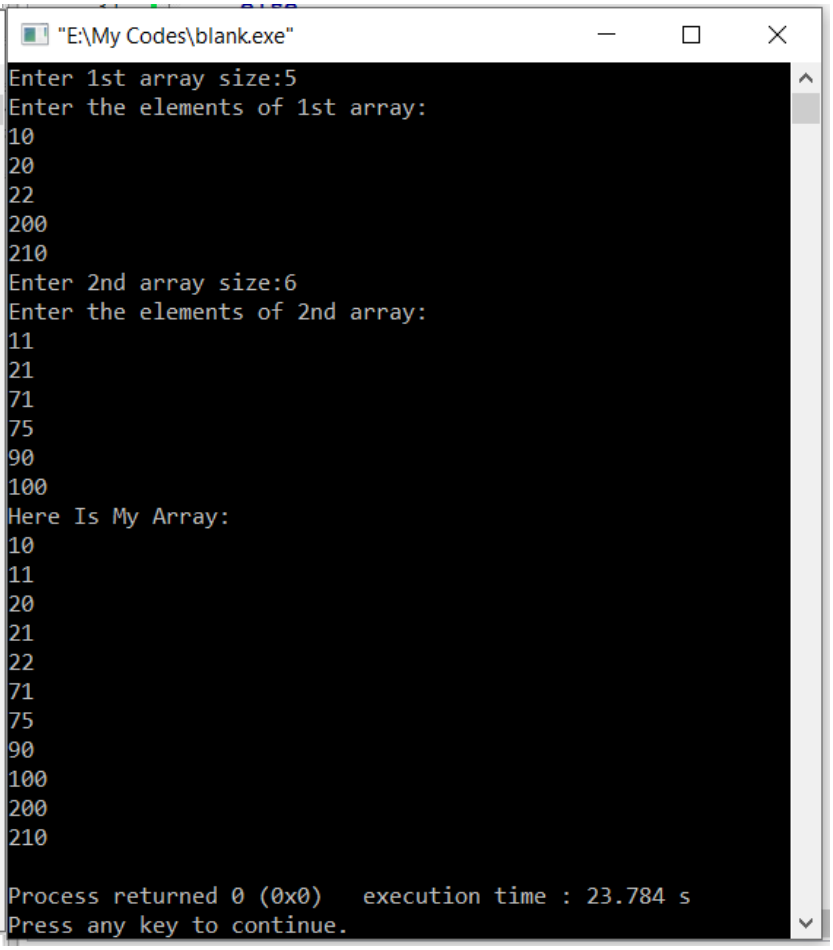
```
#include<stdio.h>
int main()
{
   int i,j,k,n1,n2,temp,v;
   printf("Enter 1st array size:");
   scanf("%d",&n1);
   int A[n1];
   printf("Enter the elements of 1st array:\n");
   for(i=0; i<n1; i++)
   {
      scanf("%d",& A[i]);
   }
   printf("Enter 2nd array size:");
   scanf("%d",&n2);
   int B[n2];
   printf("Enter the elements of 2nd array:\n");
   for(i=0; i<n2; i++)
   {
      scanf("%d",& B[i]);
   }
   v=n1+n2;
   int C[v];

   if(n2<n1)
   {
      temp=n2;
      n2=n1;
      n1=temp;
```

```
      goto loop;
   }
   else
   {
loop:
      i=0;
      j=0;
      k=0;
      while(i!=n1)
      {
         if(A[i]<=B[j])
         {
            C[k]=A[i];
            i++;
            k++;
         }
         else
         {
            C[k]=B[j];
            j++;
            k++;
         }
      }
   }
   while(k!=n1+n2)
   {
      C[k]=B[j];
      k++;
      j++;
   }
```

```
    printf("Here Is My Array:\n");
    for(i=0; i<v; i++)
    {
       printf("%d\n",C[i]);
    }
}
```

**Output:**



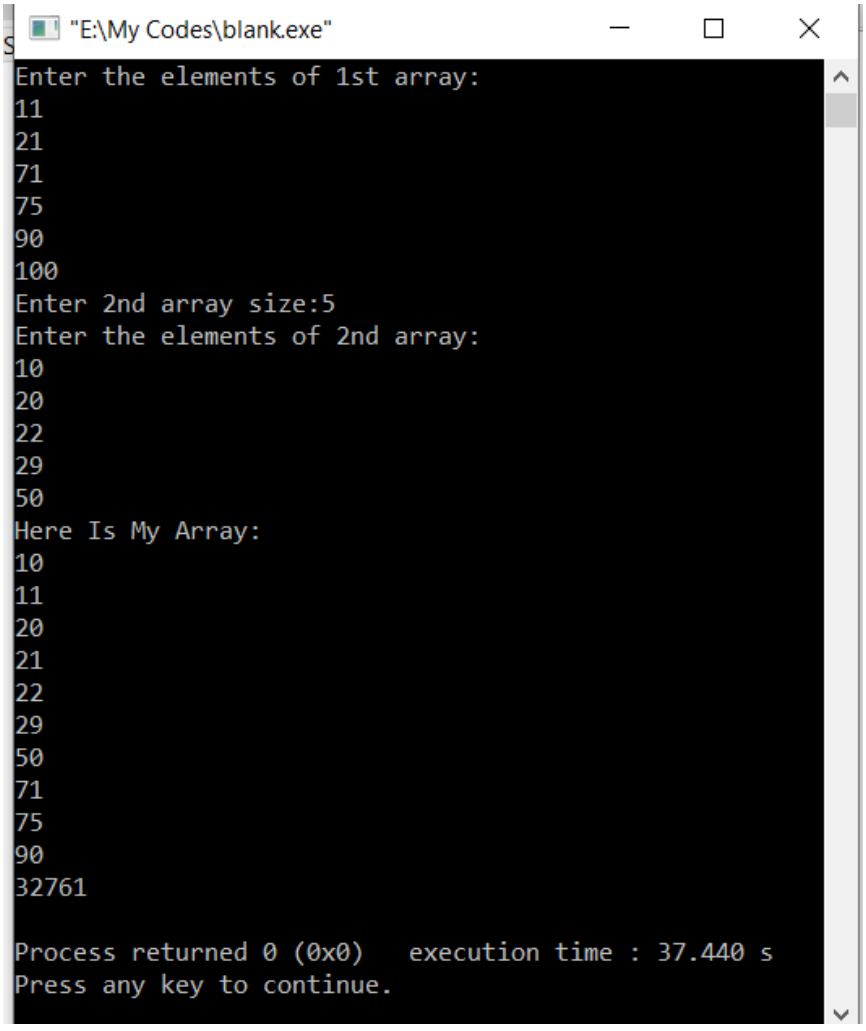



**But here loophole is if n1 >n2 according to code we swap the 1st array size n1 with the 2nd array size n2---**

**Thus the code run but isn't correct fully:**

**Like here last output we should get 100 but we are getting garbage value…**

**It's because we just swapped the array size not the element…**



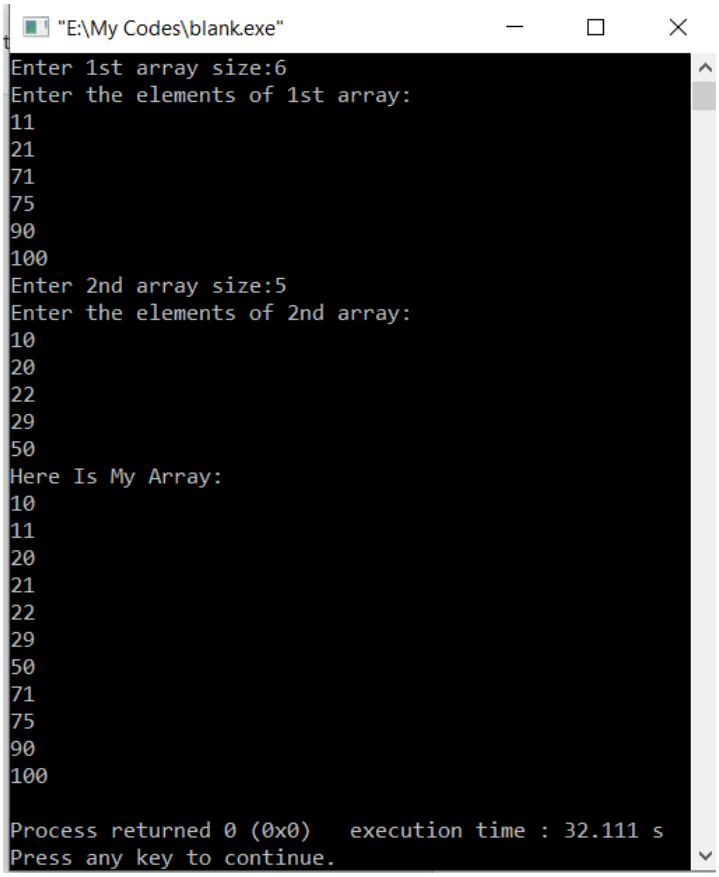
**Here is the correct code with array element exchanging code:**

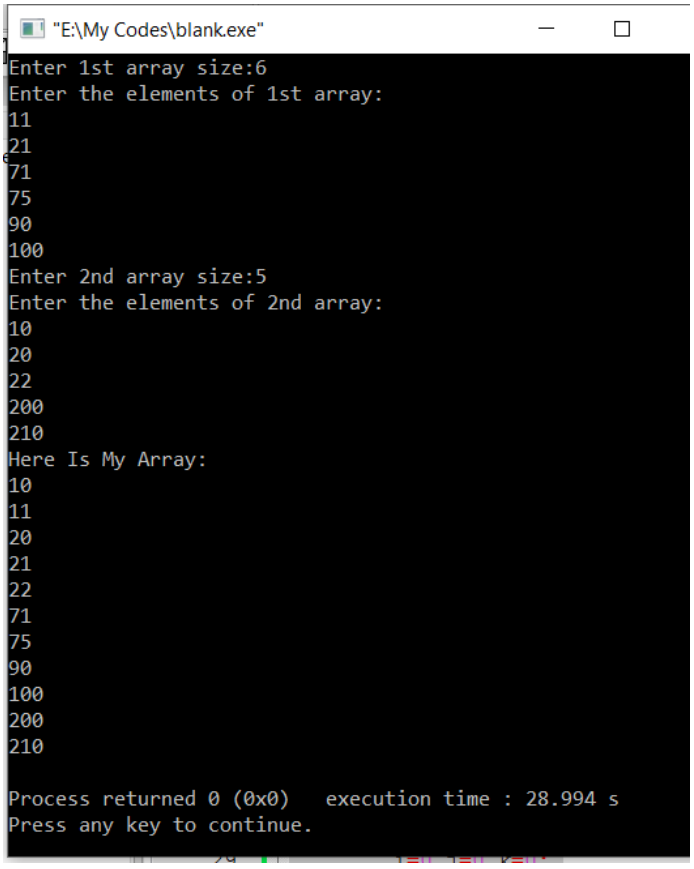
```
#include<stdio.h>
int main()
{
   int i,j,k,n1,n2,temp,v;
   printf("Enter 1st array size:");
   scanf("%d",&n1);
   int A[n1];
   printf("Enter the elements of 1st array:\n");
   for(i=0; i<n1; i++)
   {
      scanf("%d",& A[i]);
   }
   printf("Enter 2nd array size:");
   scanf("%d",&n2);
   int B[n2];
   printf("Enter the elements of 2nd array:\n");
   for(i=0; i<n2; i++)
   {
      scanf("%d",& B[i]);
   }
   v=n1+n2;
   int C[v];

   if(n2<n1)
   {
      temp=n2;
      n2=n1;
      n1=temp;
      i=0,j=0,k=0;
```

```
      while(k!=n2)
      {
        temp=A[i];
        A[i]=B[j];
        B[j]=temp;
        j++;
        i++;
        k++;
      }
      goto loop;
   }
   else
   {
loop:
      i=0;
      j=0;
      k=0;
      while(i!=n1)
      {
         if(A[i]<=B[j])
         {
            C[k]=A[i];
            i++;
            k++;
         }
         else
         {
            C[k]=B[j];
            j++;
            k++;
```

```
        }
      }
    }
    while(k!=n1+n2)
    {
      C[k]=B[j];
      k++;
      j++;
    }
    printf("Here Is My Array:\n");
    for(i=0; i<v; i++)
    {
      printf("%d\n",C[i]);
    } }
```

**Output:** Now we are getting the right answers...



**Here is the simpler version of the code:**

```
#include<stdio.h>
int main()
{
   int i,j,k,n1,n2,temp,v;
   printf("Enter 1st array size:");
   scanf("%d",&n1);
   int A[n1];
   printf("Enter the elements of 1st array:\n");
   for(i=0; i<n1; i++)
   {
      scanf("%d",& A[i]);
   }
   printf("Enter 2nd array size:");
   scanf("%d",&n2);
   int B[n2];
   printf("Enter the elements of 2nd array:\n");
   for(i=0; i<n2; i++)
   {
      scanf("%d",& B[i]);
   }
   v=n1+n2;
   int C[v];

   i=0;
   j=0;
   k=0;
   while(i!=n1)
   {
```

```
    if(A[i]<=B[j])
    {
        C[k]=A[i];
        i++;
        k++;
    }
    else
    {
        C[k]=B[j];
        j++;
        k++;
    }
}
if(n1==i)
{
    while(k!=n1+n2)
    {
        C[k]=B[j];
        k++;
        j++;
    }
}
else if (n2==j)
{
    while(k!=n1+n2)
    {
        C[k]=A[i];
        k++;
        i++;
    }
```

```
    }
    printf("Here Is My Array:\n");
    for(i=0; i<v; i++)
    {
       printf("%d\n",C[i]);
    }
}
```

**This code runs perfectly---**
**In 1st code we used external condition of n1 & n2 to compare the array size so that we can print the left elements of the bigger array… as we know which is bigger so later we used one condition in while to print the left array elements-:**

```
    while(k!=n1+n2)
    {//here we know smaller array A[i] ended so taking the other one
        C[k]=B[j];
        k++;
        j++;
    }
```

**But in 2nd code we didn't used external condition of n1 & n2 …because in this code we don't need to know which is bigger as later we used two condition in while to print the left array elements-:**

```
    if(n1==i)
    {//Means A[n1] array is ended so we will print B[n2] array
        while(k!=n1+n2)
        {
            C[k]=B[j];
            k++;
            j++;
        }
    }
    else if (n2==j)
    {//Means B[n2] array is ended so we will print A[n1] array
        while(k!=n1+n2)
        {
            C[k]=A[i];
            k++;
            i++;
        }
    }
```