Programming Techniques

ICT 131-3

Practical 07

UWU/ICT/22/077

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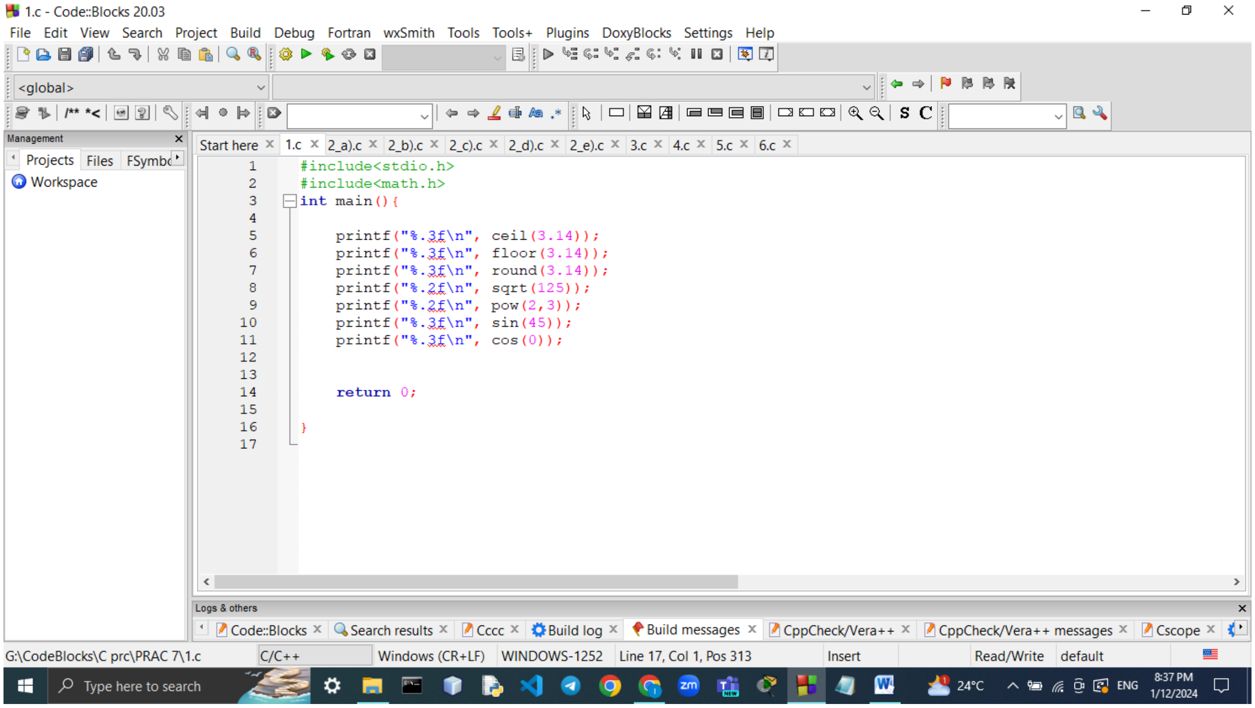
1. Write a simple C program using maths functions to give the output for below cases:

a) round up
b) round down
c) round off to the nearest value
d) square root
e) power of the given two arguments
f) sin value
g) cos value



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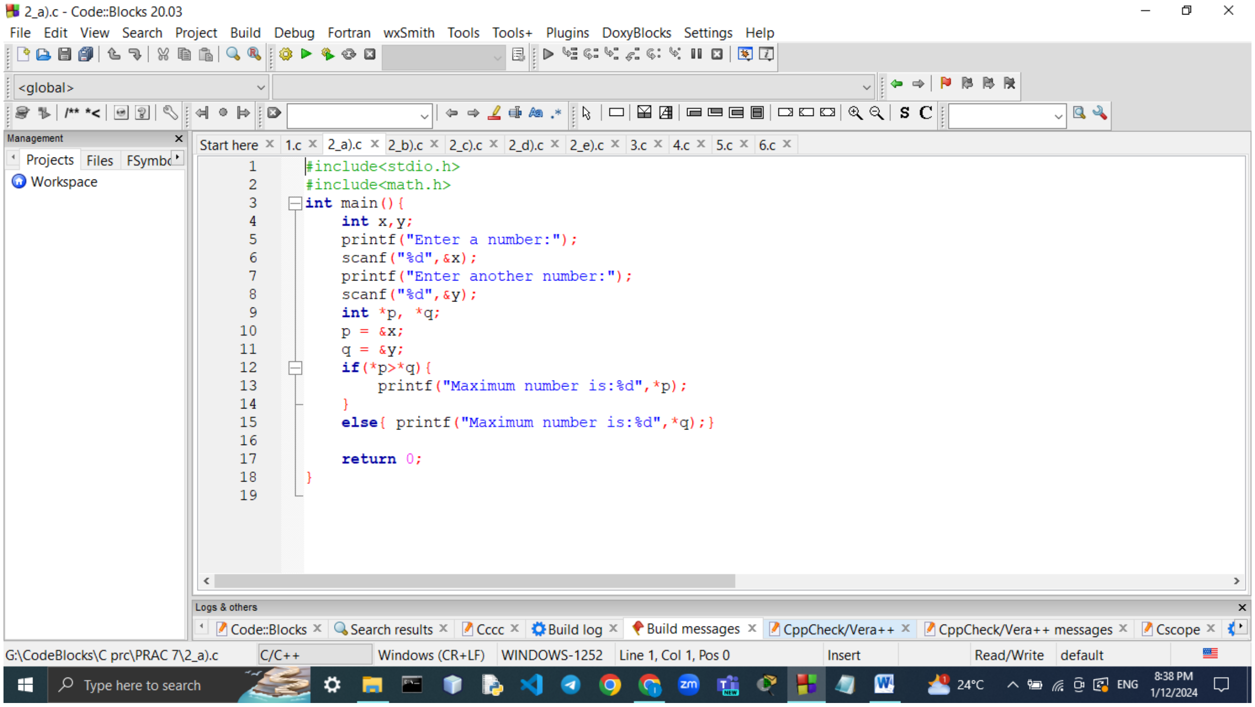
```c
#include<stdio.h>
#include<math.h>
int main(){

    printf("%.3f\n", ceil(3.14));
    printf("%.3f\n", floor(3.14));
    printf("%.3f\n", round(3.14));
    printf("%.2f\n", sqrt(125));
    printf("%.2f\n", pow(2,3));
    printf("%.3f\n", sin(45));
    printf("%.3f\n", cos(0));


    return 0;

}

```

2. Write C programs using pointers

a) Find the maximum number between two numbers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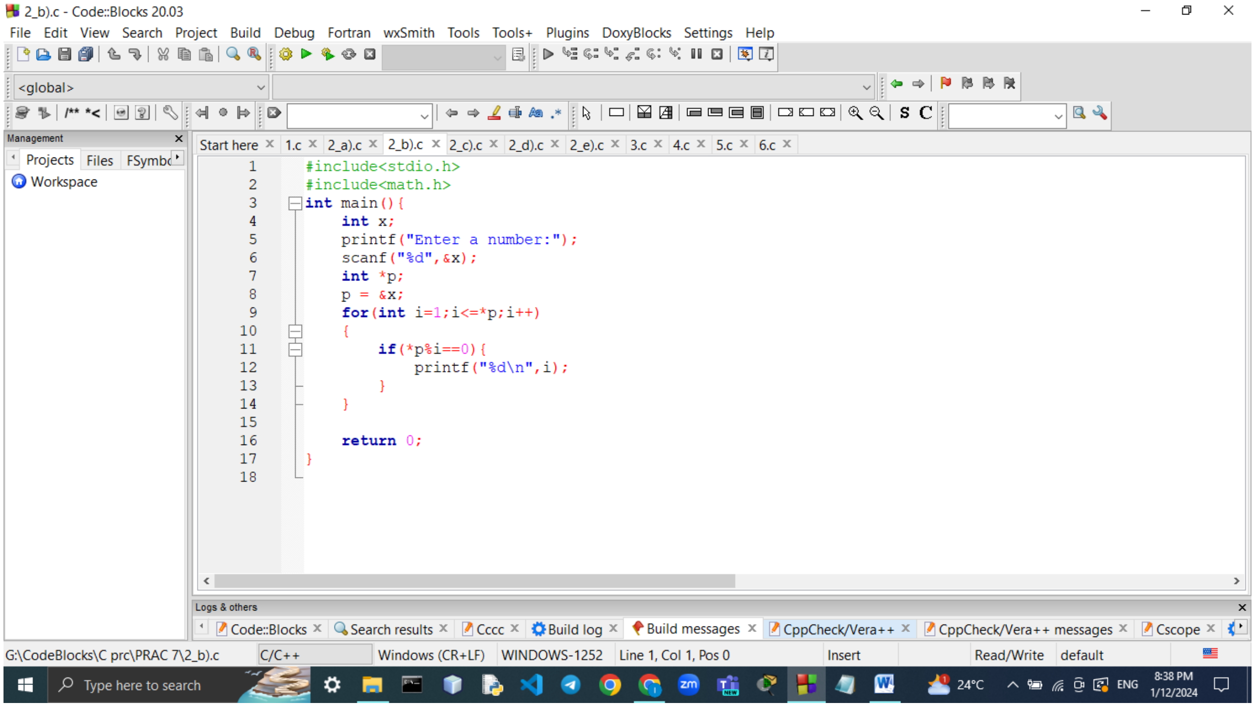
```c
#include<stdio.h>
#include<math.h>
int main(){
    int x,y;
    printf("Enter a number:");
    scanf("%d",&x);
    printf("Enter another number:");
    scanf("%d",&y);
    int *p, *q;
    p = &x;
    q = &y;
    if(*p>*q){
        printf("Maximum number is:%d",*p);
    }
    else{ printf("Maximum number is:%d",*q);}

    return 0;
}
```

b) Find the factorial ($x!$) of a given number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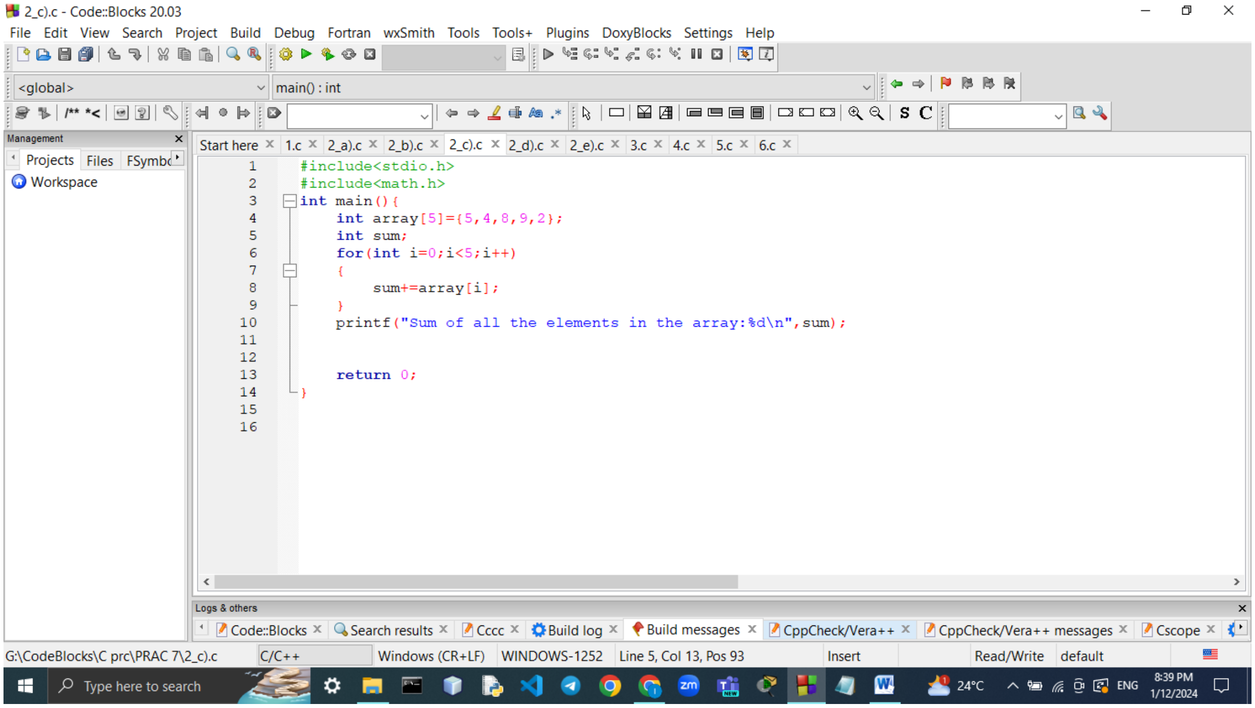
```c
#include<stdio.h>
#include<math.h>
int main(){
    int x;
    printf("Enter a number:");
    scanf("%d",&x);
    int *p;
    p = &x;
    for(int i=1;i<=*p;i++)
    {
        if(*p%i==0){
            printf("%d\n",i);
        }
    }

    return 0;
}
```

c) Compute the sum of all elements in an array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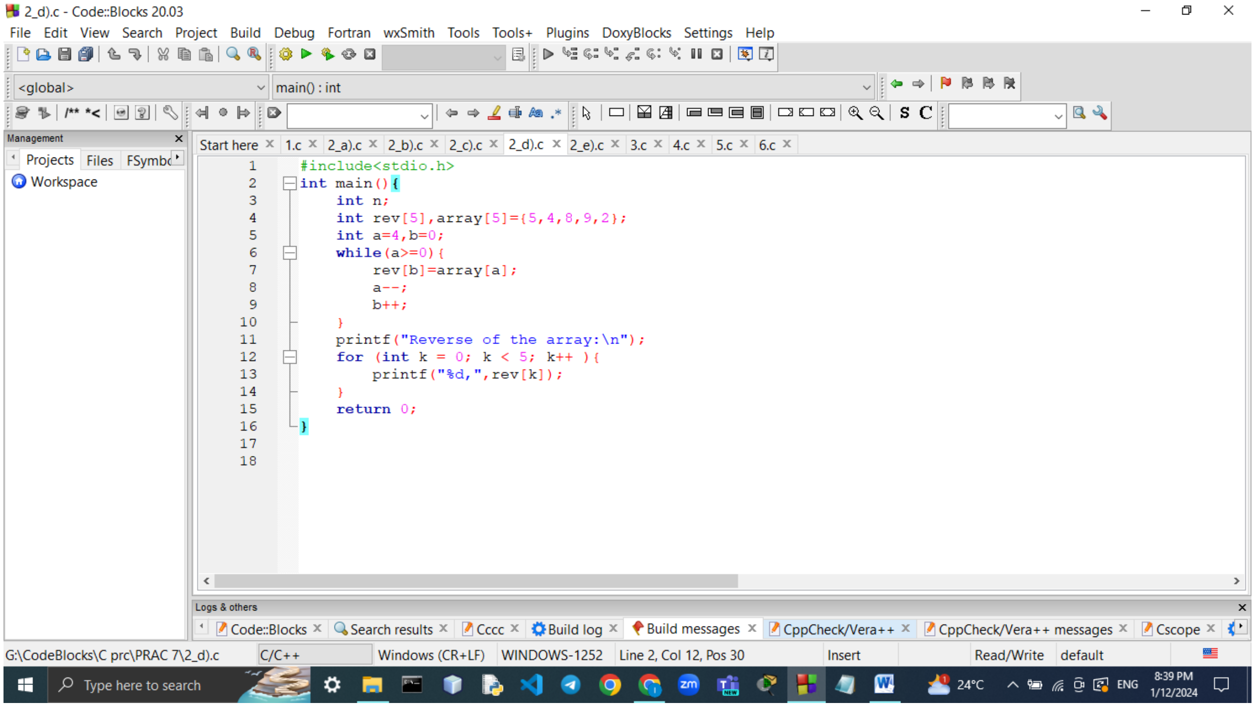
```
#include<stdio.h>
#include<math.h>
int main(){
    int array[5]={5,4,8,9,2};
    int sum;
    for(int i=0;i<5;i++)
    {
        sum+=array[i];
    }
    printf("Sum of all the elements in the array:%d\n",sum);


    return 0;
}
```

d) Print the elements of an array in reverse order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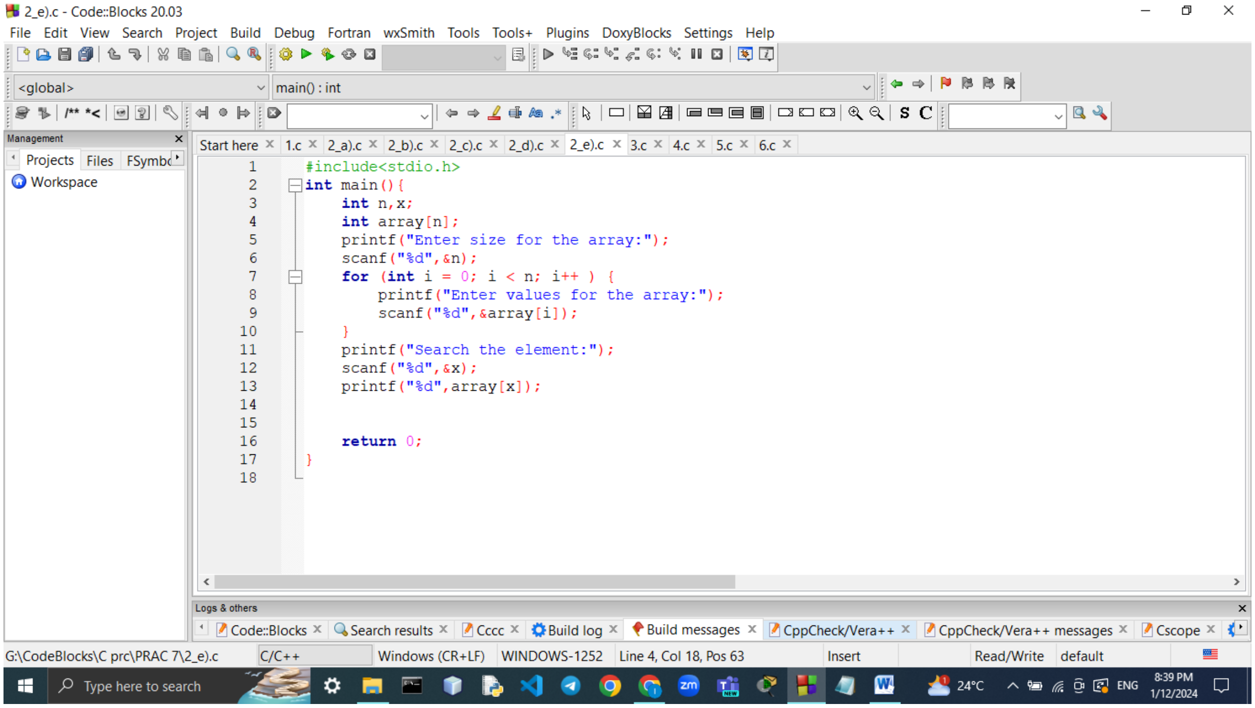
```
#include<stdio.h>
int main(){
    int n;
    int rev[5],array[5]={5,4,8,9,2};
    int a=4,b=0;
    while(a>=0){
        rev[b]=array[a];
        a--;
        b++;
    }
    printf("Reverse of the array:\n");
    for (int k = 0; k < 5; k++ ){
        printf("%d,",rev[k]);
    }
    return 0;
}
```

e) Search an element in an array .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```
#include<stdio.h>
int main(){
    int n,x;
    int array[n];
    printf("Enter size for the array:");
    scanf("%d",&n);
    for (int i = 0; i < n; i++ ) {
        printf("Enter values for the array:");
        scanf("%d",&array[i]);
    }
    printf("Search the element:");
    scanf("%d",&x);
    printf("%d",array[x]);


    return 0;
}
```

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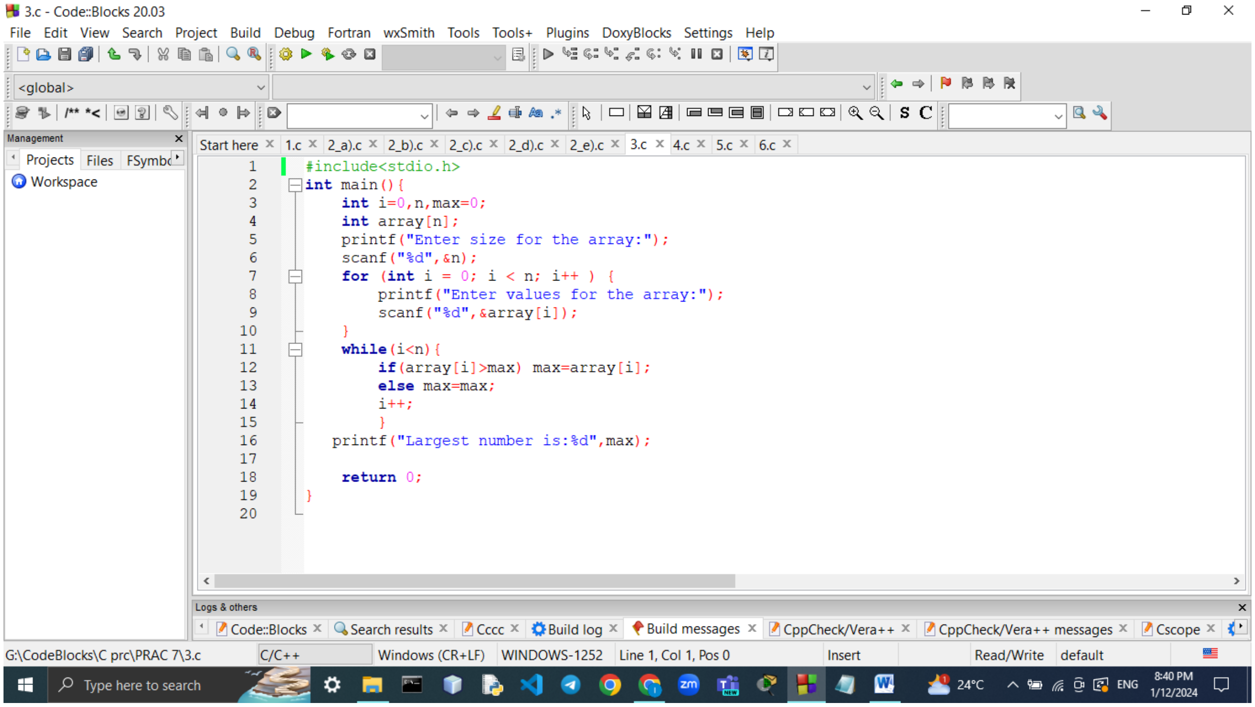
3. Write a C program to find largest number in an array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```
#include<stdio.h>
int main(){
    int i=0,n,max=0;
    int array[n];
    printf("Enter size for the array:");
    scanf("%d",&n);
    for (int i = 0; i < n; i++ ) {
        printf("Enter values for the array:");
        scanf("%d",&array[i]);
    }
    while(i<n){
        if(array[i]>max) max=array[i];
        else max=max;
        i++;
        }
   printf("Largest number is:%d",max);

    return 0;
}
```

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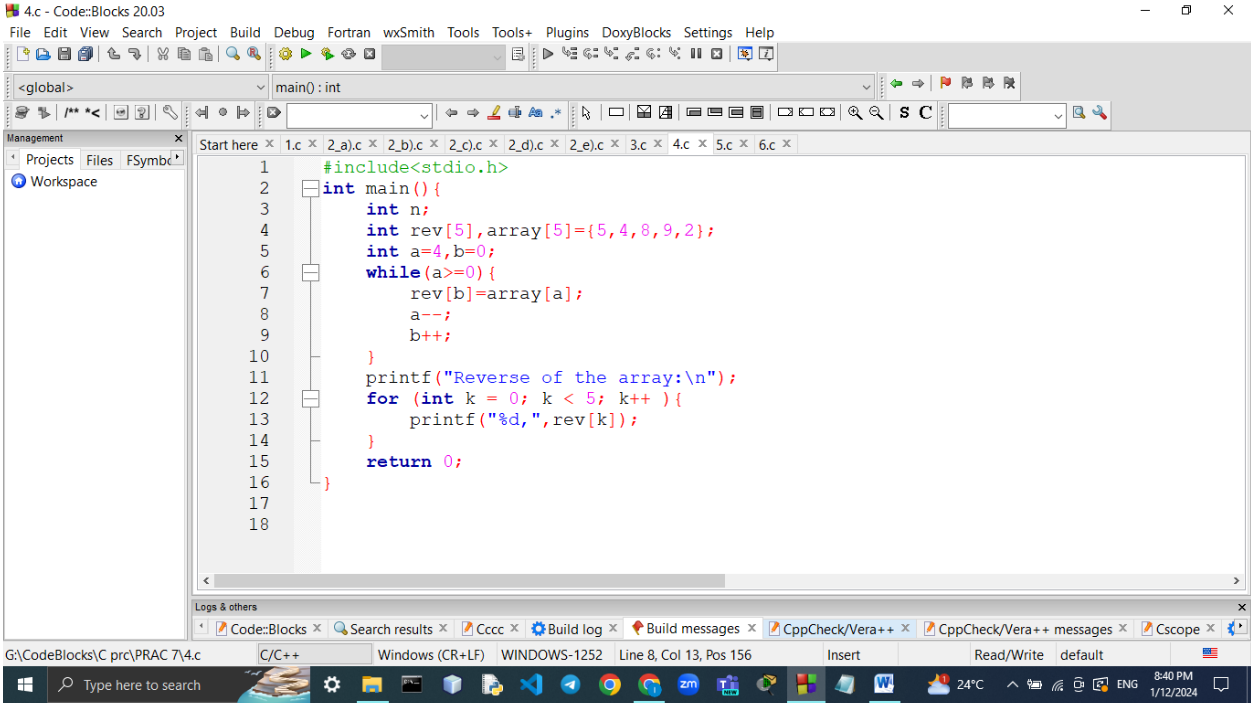
4. Write a C program to find reverse of an array
Example: If the elements of the array are: 10, 5, 16, 35, 500
Then its reverse would be: 500, 35, 16, 5, 10
Hint: Can Use 2 arrays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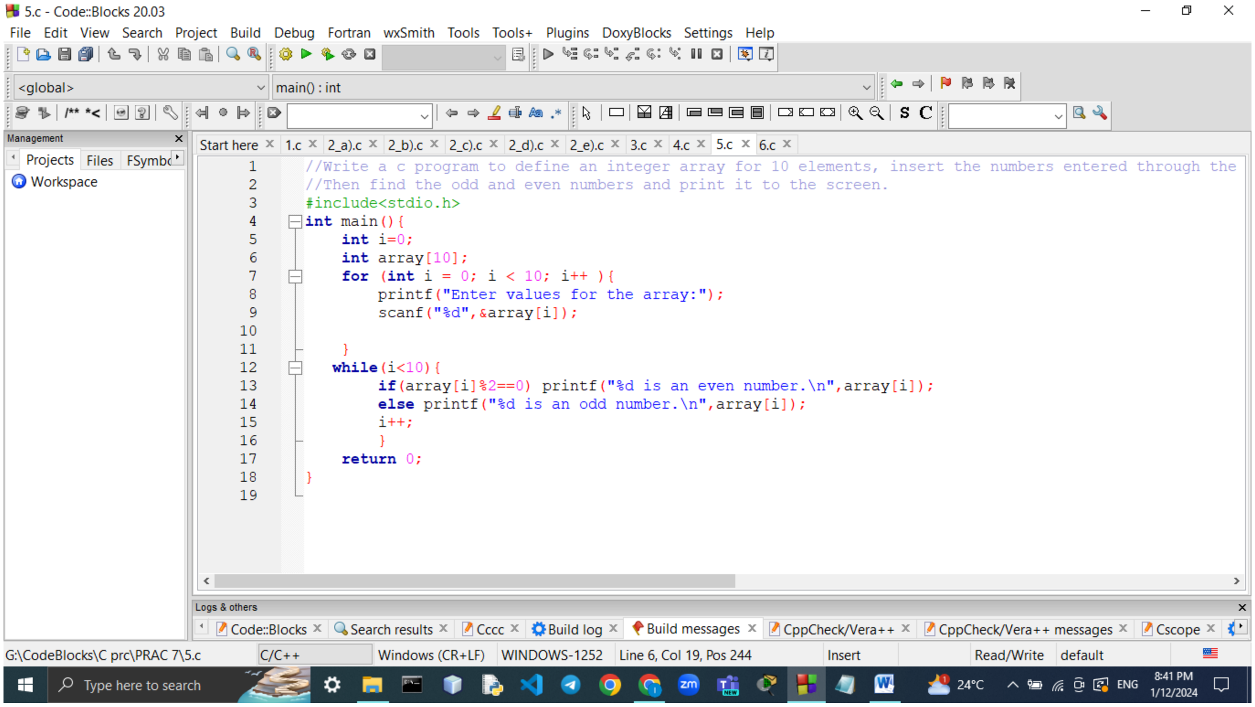
```c
#include<stdio.h>
int main(){
    int n;
    int rev[5],array[5]={5,4,8,9,2};
    int a=4,b=0;
    while(a>=0){
        rev[b]=array[a];
        a--;
        b++;
    }
    printf("Reverse of the array:\n");
    for (int k = 0; k < 5; k++ ){
        printf("%d,",rev[k]);
    }
    return 0;
}
```

5. Write a c program to define an integer array for 10 elements, insert the numbers entered through the keyboard. Then find the odd and even numbers and print it to the screen.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```c
//Write a c program to define an integer array for 10 elements, insert the numbers entered through the
//Then find the odd and even numbers and print it to the screen.
#include<stdio.h>
int main(){
    int i=0;
    int array[10];
    for (int i = 0; i < 10; i++ ){
        printf("Enter values for the array:");
        scanf("%d",&array[i]);

    }
   while(i<10){
        if(array[i]%2==0) printf("%d is an even number.\n",array[i]);
        else printf("%d is an odd number.\n",array[i]);
        i++;
        }
    return 0;
}

```

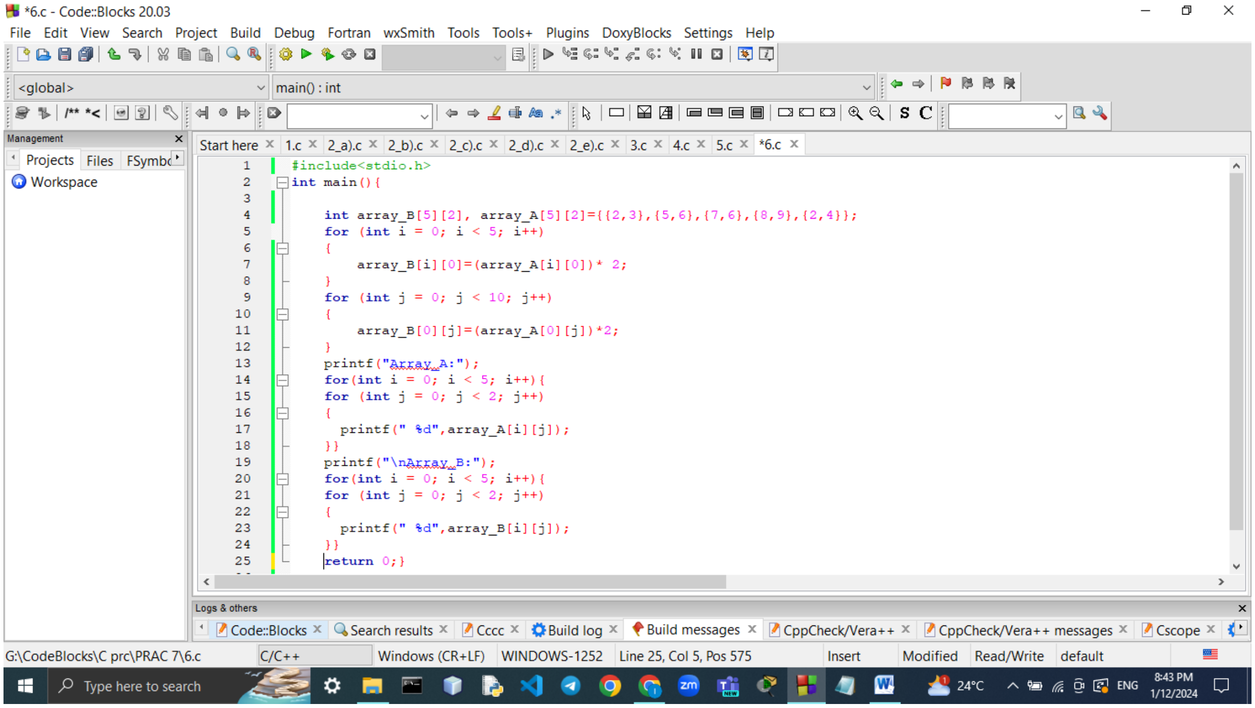
6. Write a C program to obtain given array(array_B) from the following array(array_A)

array_A={{2,3},{5,6},{7,6},{8,9},{2,4}};

array_B = {{4,6},{10,12},{14,12},{16,18},{4,8}};

a) Print the values in the array(array_A)

b) Print the values in the new array (array_B)



```c
#include<stdio.h>
int main(){

    int array_B[5][2], array_A[5][2]={{2,3},{5,6},{7,6},{8,9},{2,4}};
    for (int i = 0; i < 5; i++)
    {
        array_B[i][0]=(array_A[i][0])* 2;
    }
    for (int j = 0; j < 10; j++)
    {
        array_B[0][j]=(array_A[0][j])*2;
    }
    printf("Array_A:");
    for(int i = 0; i < 5; i++){
    for (int j = 0; j < 2; j++)
    {
      printf(" %d",array_A[i][j]);
    }}
    printf("\nArray_B:");
    for(int i = 0; i < 5; i++){
    for (int j = 0; j < 2; j++)
    {
      printf(" %d",array_B[i][j]);
    }}
    return 0;}
```

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