COMSATS University Islamabad, Vehari Campus

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Department:	**Computer Science**
Course:	**DSA Lab**
Instructor:	**Yasmeen Jana**
Assignment:	**1st**
Section:	**B**

Program # 1

Output:

```
#include <stdio.h>

int main() {

   int num = 10;

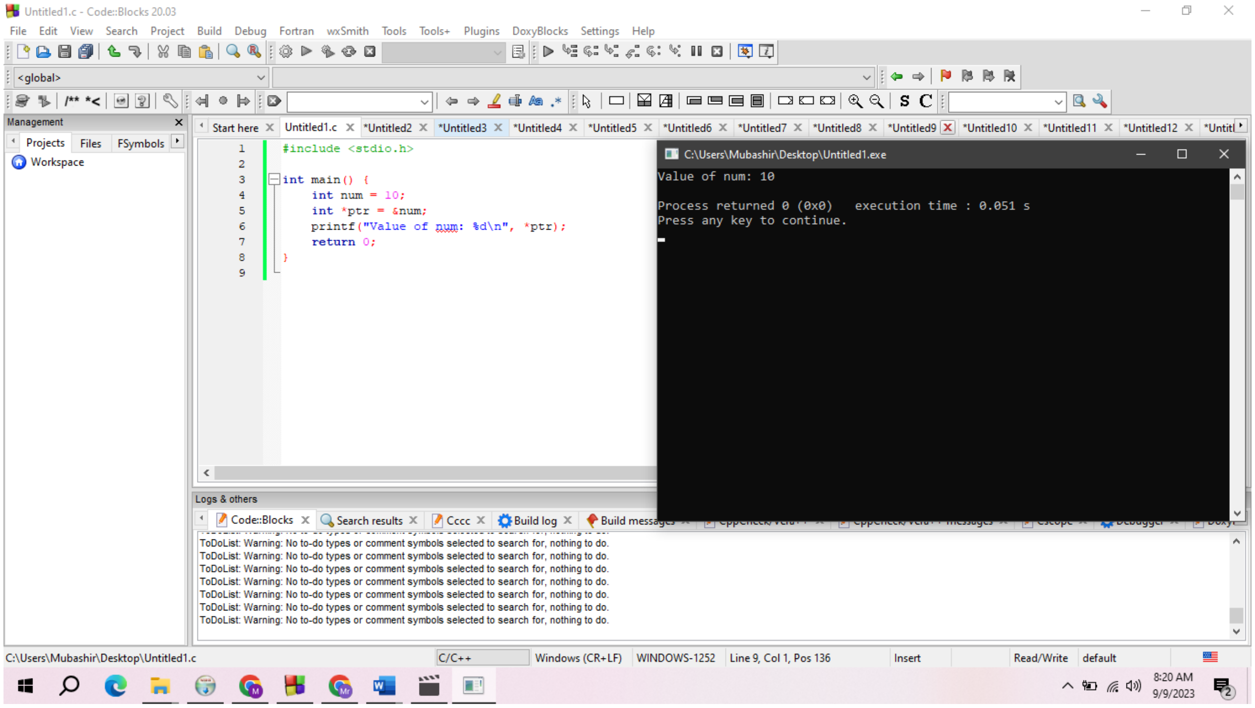
   int *ptr = &num;

   printf("Value of num: %d\n", *ptr);

   return 0;

}
```

Output:



```
#include <stdio.h>

int main() {
    int num = 10;
    int *ptr = &num;
    printf("Value of num: %d\n", *ptr);
    return 0;
}
```

C:\Users\Mubashir\Desktop\Untitled1.exe

```
Value of num: 10

Process returned 0 (0x0)   execution time : 0.051 s
Press any key to continue.
```

```
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
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```

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C/C++
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WINDOWS-1252
Line 9, Col 1, Pos 136
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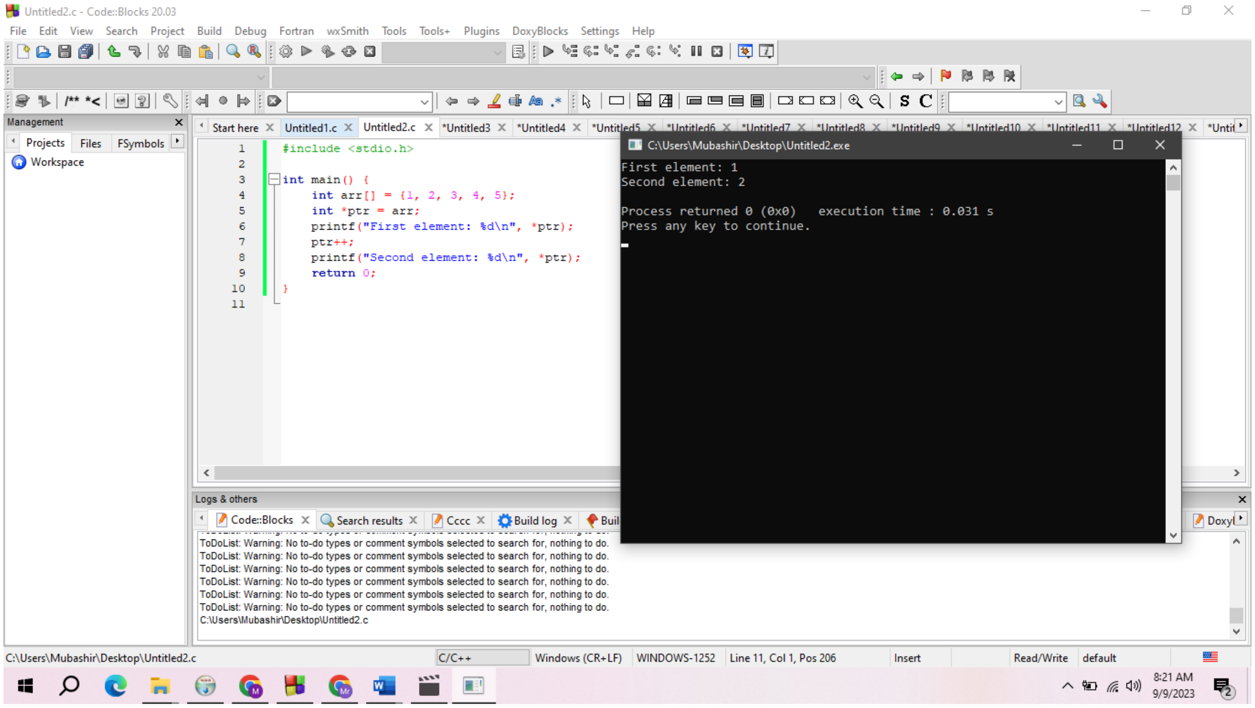
9/9/2023

Program # 2

```
#include <stdio.h>
int main() {
    int arr[] = {1, 2, 3, 4, 5};
    int *ptr = arr;
    printf("First element: %d\n", *ptr);
    ptr++;
    printf("Second element: %d\n", *ptr);
    return 0;
}
```

Output:



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Logs & others
Code::Blocks Search results Cccc Build log

```
#include <stdio.h>

int main() {
    int arr[] = {1, 2, 3, 4, 5};
    int *ptr = arr;
    printf("First element: %d\n", *ptr);
    ptr++;
    printf("Second element: %d\n", *ptr);
    return 0;
}
```

```
First element: 1
Second element: 2

Process returned 0 (0x0)   execution time : 0.031 s
Press any key to continue.
```

```
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
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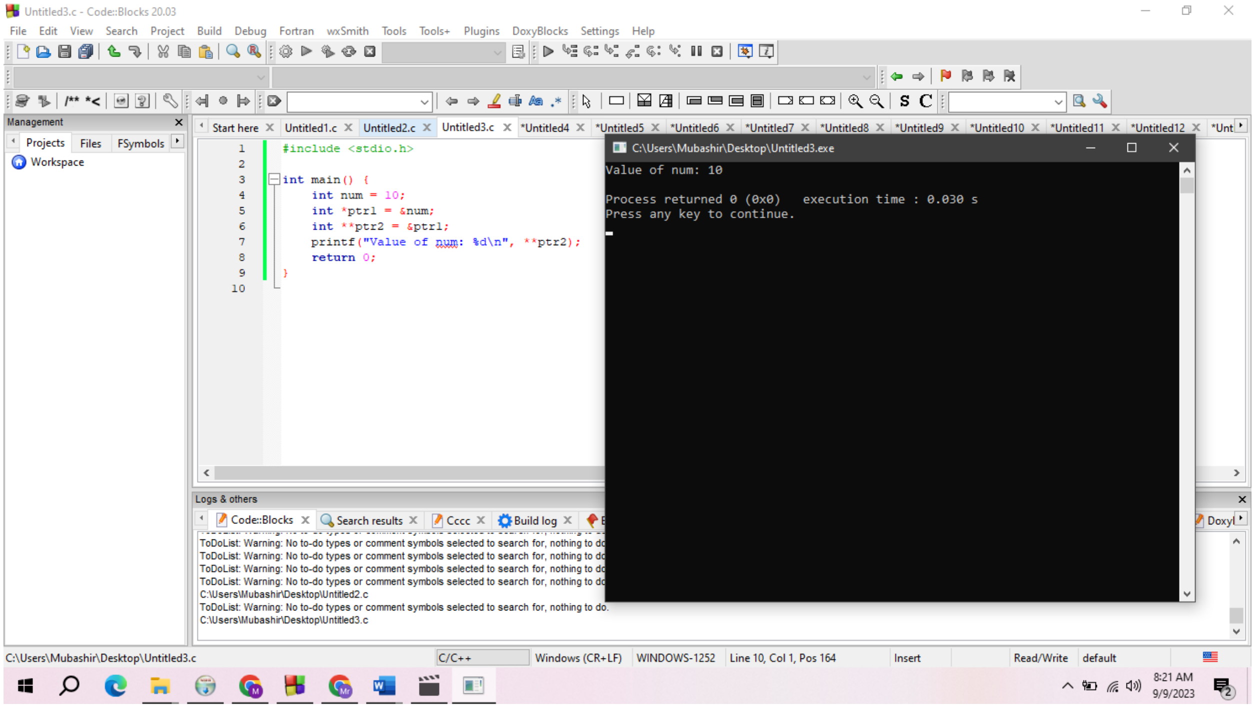
8:21 AM 9/9/2023

Program # 3

Output:

```c
#include <stdio.h>
int main() {
   int num = 10;
   int *ptr1 = &num;
   int **ptr2 = &ptr1;
   printf("Value of num: %d\n", **ptr2);
   return 0;
}
```



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```c
#include <stdio.h>

int main() {
    int num = 10;
    int *ptr1 = &num;
    int **ptr2 = &ptr1;
    printf("Value of num: %d\n", **ptr2);
    return 0;
}

```

```
Value of num: 10

Process returned 0 (0x0)   execution time : 0.030 s
Press any key to continue.
```

```
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ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
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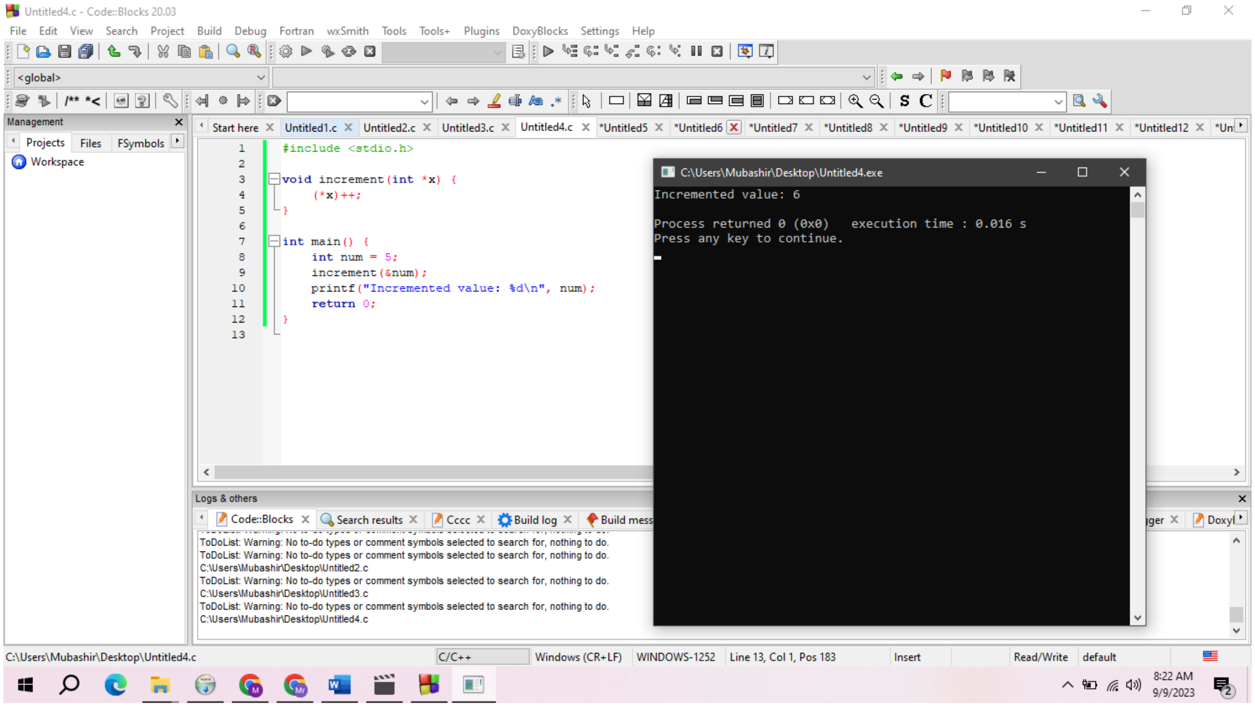
```

Program # 4

Output:

```
#include <stdio.h>
void increment(int *x) {
   (*x)++;
}
int main() {
   int num = 5;
   increment(&num);
   printf("Incremented value: %d\n", num);
```



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9/9/2023

```
#include <stdio.h>

void increment(int *x) {
    (*x)++;
}

int main() {
    int num = 5;
    increment(&num);
    printf("Incremented value: %d\n", num);
    return 0;
}
```

```
Incremented value: 6

Process returned 0 (0x0)   execution time : 0.016 s
Press any key to continue.
```

```
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
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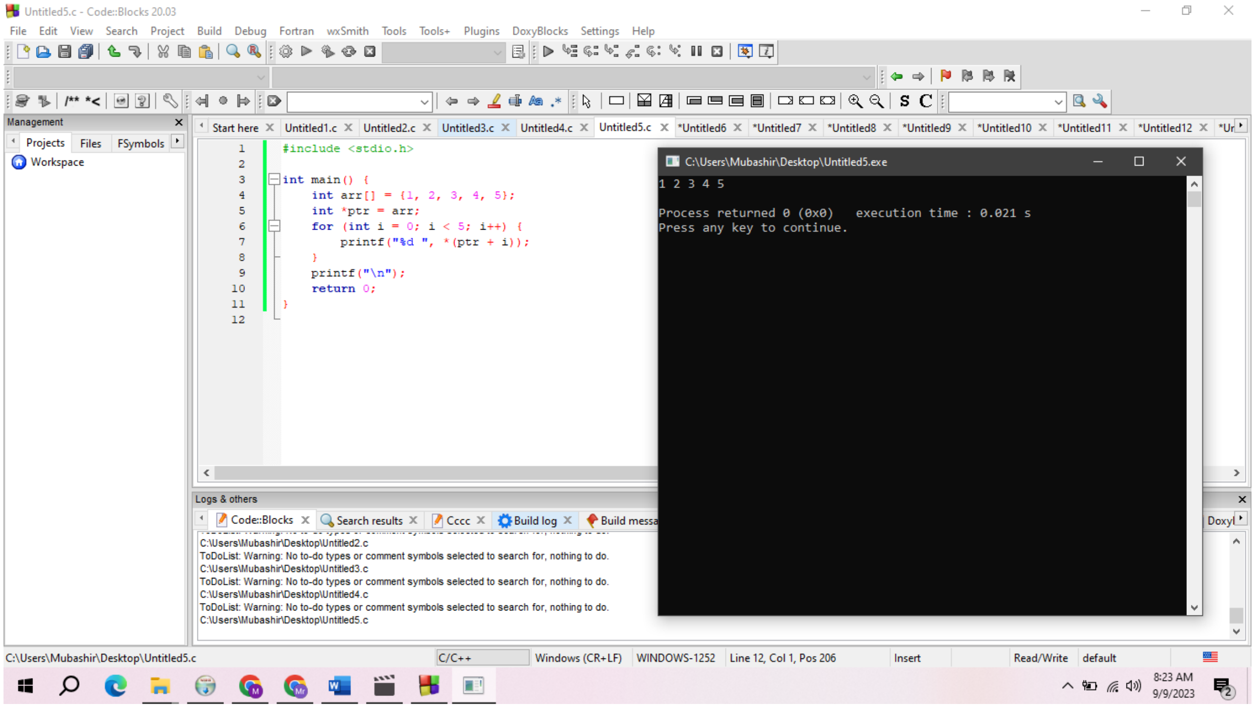
C:\Users\Mubashir\Desktop\Untitled4.c
```

```
   return 0;
}
```

Program # 5

Output:

```
#include <stdio.h>
int main() {
   int arr[] = {1, 2, 3, 4, 5};
   int *ptr = arr;
   for (int i = 0; i < 5; i++) {
      printf("%d ", *(ptr + i));
   }
   printf("\n");
   return 0;
}
```



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9/9/2023

```
#include <stdio.h>

int main() {
    int arr[] = {1, 2, 3, 4, 5};
    int *ptr = arr;
    for (int i = 0; i < 5; i++) {
        printf("%d ", *(ptr + i));
    }
    printf("\n");
    return 0;
}
```

```
1 2 3 4 5

Process returned 0 (0x0)   execution time : 0.021 s
Press any key to continue.
```

```
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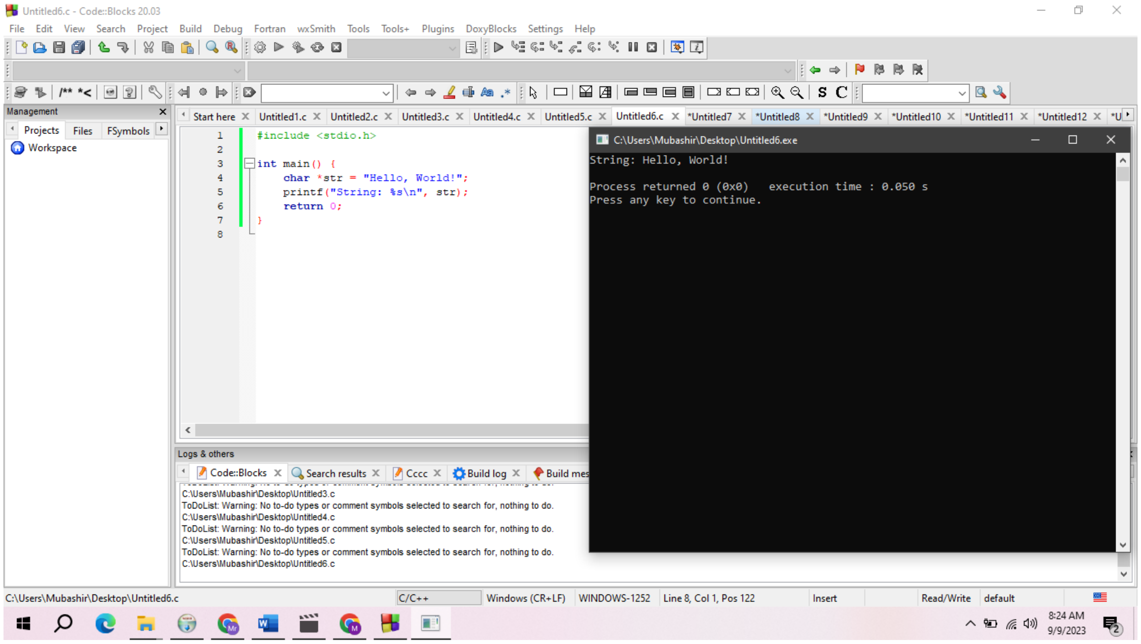
C:\Users\Mubashir\Desktop\Untitled4.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled5.c
```

Program # 6

Output:

```
#include <stdio.h>

int main() {
   char *str = "Hello, World!";
   printf("String: %s\n", str);
   return 0;
}
```



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```
#include <stdio.h>

int main() {
    char *str = "Hello, World!";
    printf("String: %s\n", str);
    return 0;
}
```

```
String: Hello, World!

Process returned 0 (0x0)   execution time : 0.050 s
Press any key to continue.
```

```
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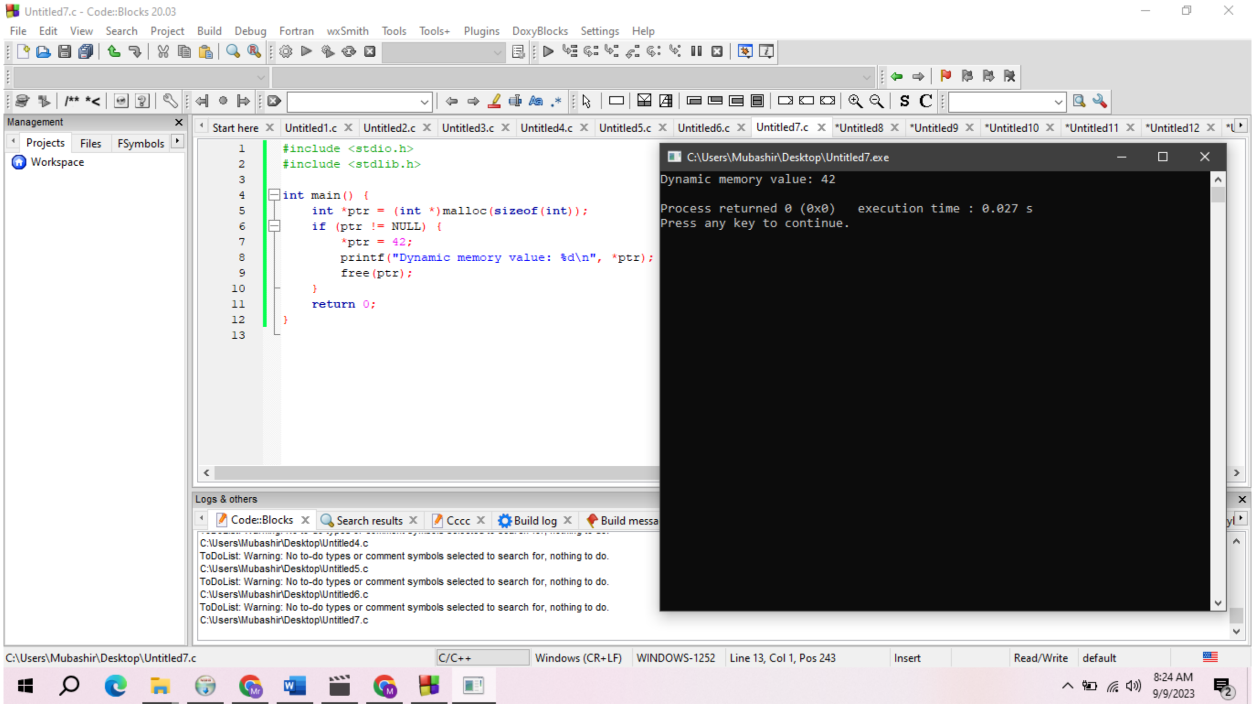
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled6.c
```

Program # 7

Output:

```
#include <stdio.h>
#include <stdlib.h>
int main() {
   int *ptr = (int *)malloc(sizeof(int));
   if (ptr != NULL) {
       *ptr = 42;
       printf("Dynamic memory value: %d\n", *ptr);
       free(ptr);
   }
   return 0;
}
```



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C:\Users\Mubashir\Desktop\Untitled7.c C/C++ Windows (CR+LF) WINDOWS-1252 Line 13, Col 1, Pos 243 Insert Read/Write default
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9/9/2023

```
#include <stdio.h>
#include <stdlib.h>

int main() {
    int *ptr = (int *)malloc(sizeof(int));
    if (ptr != NULL) {
        *ptr = 42;
        printf("Dynamic memory value: %d\n", *ptr);
        free(ptr);
    }
    return 0;
}
```

```
Dynamic memory value: 42

Process returned 0 (0x0)   execution time : 0.027 s
Press any key to continue.
```

```
C:\Users\Mubashir\Desktop\Untitled4.c
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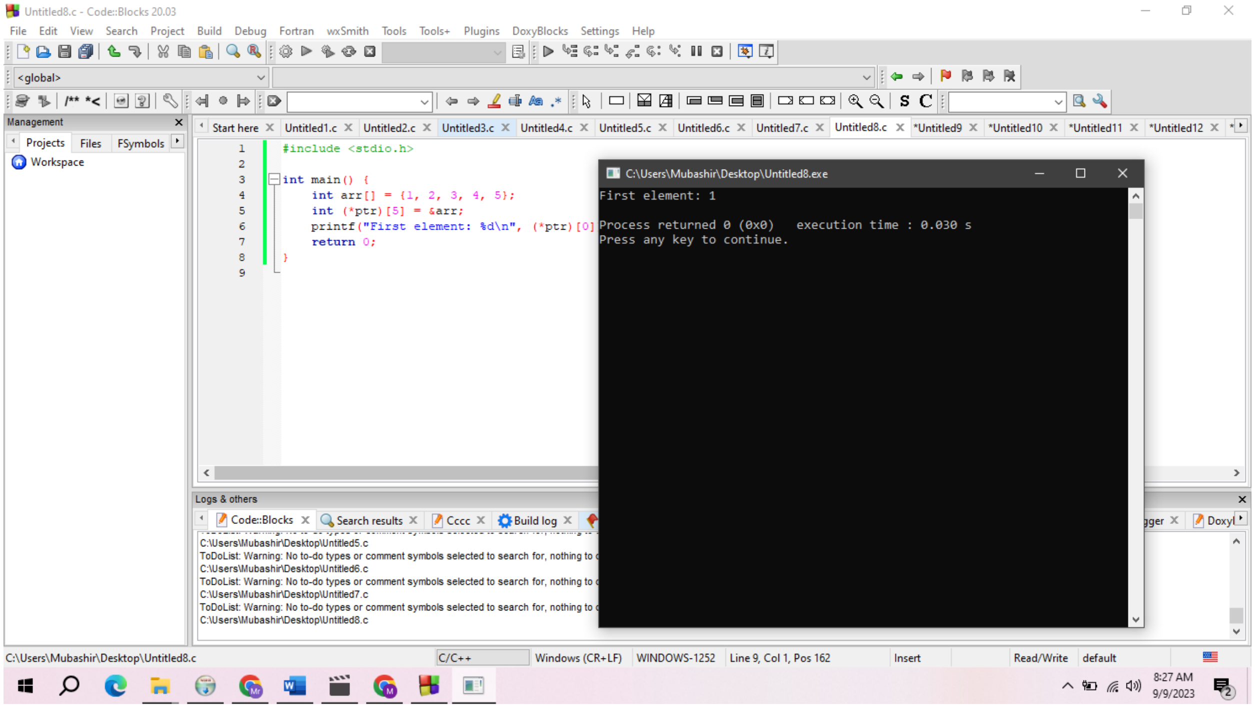
C:\Users\Mubashir\Desktop\Untitled6.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled7.c
```

Program # 8

Output:

```
#include <stdio.h>


int main() {
   int arr[] = {1, 2, 3, 4, 5};
   int (*ptr)[5] = &arr;
   printf("First element: %d\n", (*ptr)[0]);
   return 0;
}
```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```
#include <stdio.h>

int main() {
    int arr[] = {1, 2, 3, 4, 5};
    int (*ptr)[5] = &arr;
    printf("First element: %d\n", (*ptr)[0]
    return 0;
}
```

```
First element: 1

Process returned 0 (0x0)   execution time : 0.030 s
Press any key to continue.
```

```
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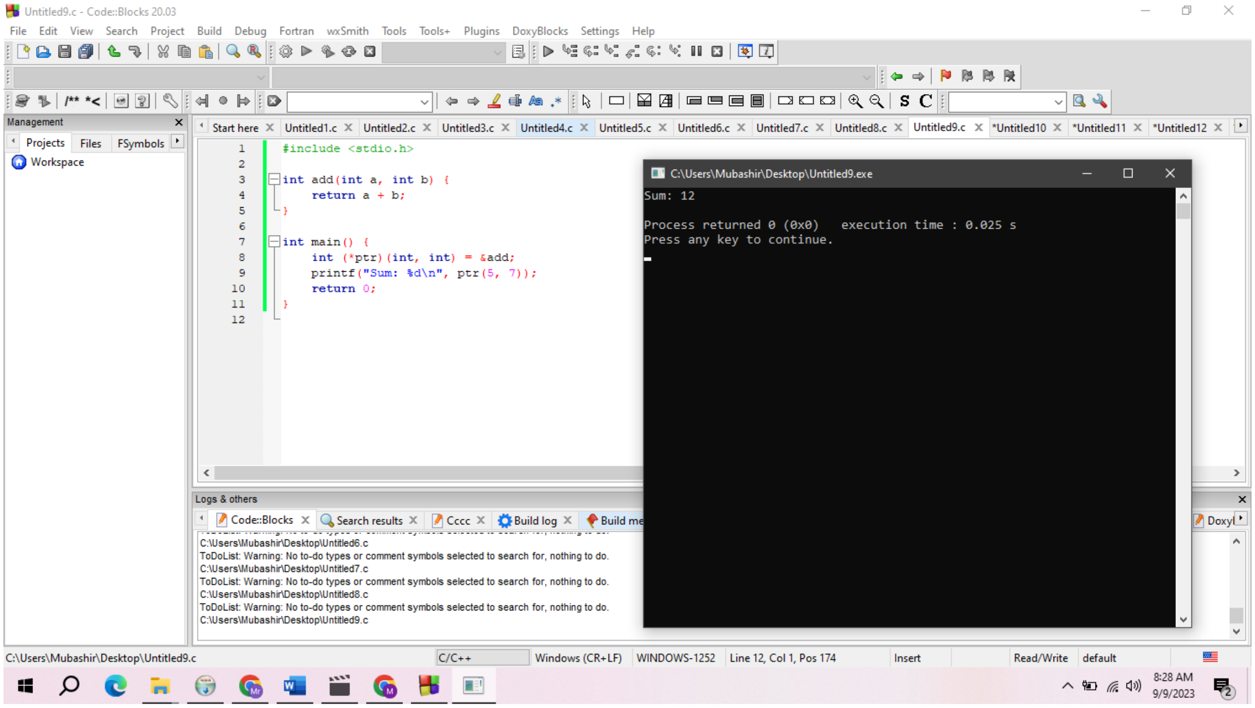
Program # 9

Output:

```
#include <stdio.h>


int add(int a, int b) {
   return a + b;
}
int main() {
   int (*ptr)(int, int) = &add;
   printf("Sum: %d\n", ptr(5, 7));
   return 0;
}
```



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9/9/2023

```
#include <stdio.h>

int add(int a, int b) {
    return a + b;
}

int main() {
    int (*ptr)(int, int) = &add;
    printf("Sum: %d\n", ptr(5, 7));
    return 0;
}
```

```
Sum: 12

Process returned 0 (0x0)   execution time : 0.025 s
Press any key to continue.
```

```
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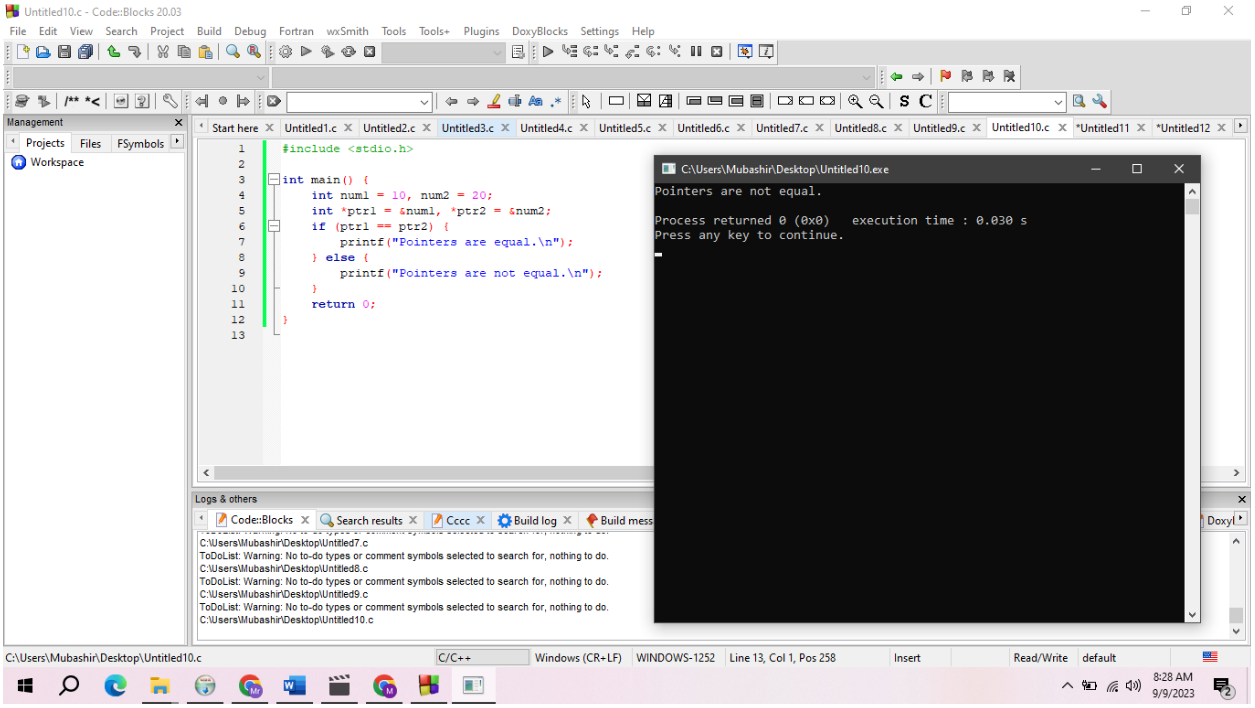
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled9.c
```

Program # 10

Output:

```c
#include <stdio.h>
int main() {
    int num1 = 10, num2 = 20;
    int *ptr1 = &num1, *ptr2 = &num2;
    if (ptr1 == ptr2) {
        printf("Pointers are equal.\n");
    } else {
        printf("Pointers are not equal.\n");
    }
    return 0;
}
```



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9/9/2023

```c
#include <stdio.h>

int main() {
    int num1 = 10, num2 = 20;
    int *ptr1 = &num1, *ptr2 = &num2;
    if (ptr1 == ptr2) {
        printf("Pointers are equal.\n");
    } else {
        printf("Pointers are not equal.\n");
    }
    return 0;
}
```

```
Pointers are not equal.

Process returned 0 (0x0)   execution time : 0.030 s
Press any key to continue.
```

```
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C:\Users\Mubashir\Desktop\Untitled9.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled10.c
```
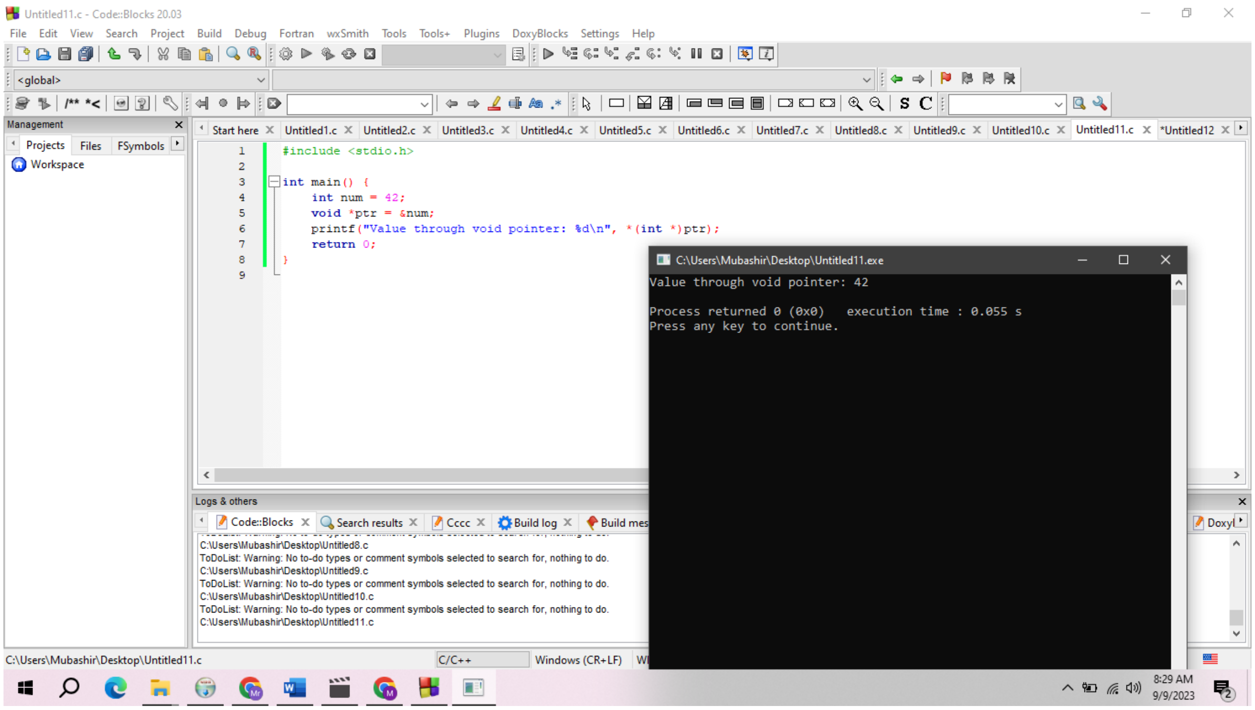

Program # 11

Output:

```
#include <stdio.h>


int main() {
   int num = 42;
   void *ptr = &num;
   printf("Value through void pointer: %d\n", *(int *)ptr);
   return 0;
}
```



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```
#include <stdio.h>

int main() {
    int num = 42;
    void *ptr = &num;
    printf("Value through void pointer: %d\n", *(int *)ptr);
    return 0;
}
```

```
Value through void pointer: 42

Process returned 0 (0x0)   execution time : 0.055 s
Press any key to continue.
```

```
C:\Users\Mubashir\Desktop\Untitled8.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
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ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled10.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled11.c
```

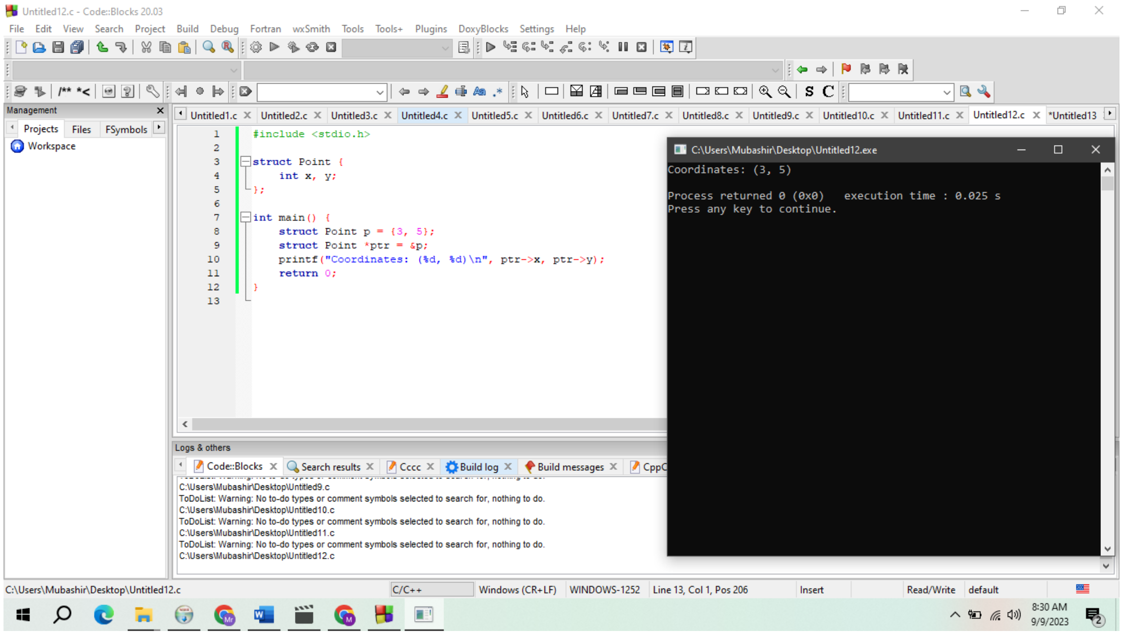
Program # 12

Output:

```
#include <stdio.h>

struct Point {
   int x, y;
};

int main() {
   struct Point p = {3, 5};
   struct Point *ptr = &p;
   printf("Coordinates: (%d, %d)\n", ptr->x, ptr->y);
   return 0;
}
```



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Workspace
Untitled1.c Untitled2.c Untitled3.c Untitled4.c Untitled5.c Untitled6.c Untitled7.c Untitled8.c Untitled9.c Untitled10.c Untitled11.c Untitled12.c *Untitled13
C:\Users\Mubashir\Desktop\Untitled12.exe
Logs & others
Code::Blocks Search results Cccc Build log Build messages CppC
C:\Users\Mubashir\Desktop\Untitled12.c C/C++ Windows (CR+LF) WINDOWS-1252 Line 13, Col 1, Pos 206 Insert Read/Write default
8:30 AM
9/9/2023

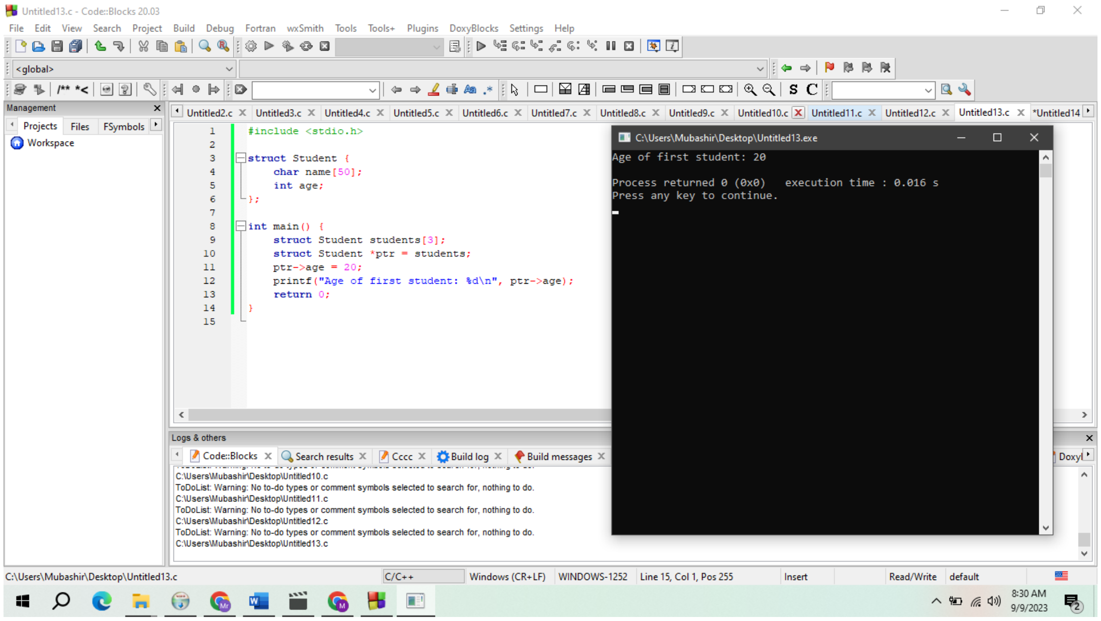
```
#include <stdio.h>

struct Point {
    int x, y;
};

int main() {
    struct Point p = {3, 5};
    struct Point *ptr = &p;
    printf("Coordinates: (%d, %d)\n", ptr->x, ptr->y);
    return 0;
}
```

```
Coordinates: (3, 5)

Process returned 0 (0x0)   execution time : 0.025 s
Press any key to continue.
```

```
C:\Users\Mubashir\Desktop\Untitled9.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled10.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled11.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled12.c
```

Program # 13
Output:

```
#include <stdio.h>
struct Student {
   char name[50];
   int age;
};
int main() {
   struct Student students[3];
   struct Student *ptr = students;
   ptr->age = 20;
   printf("Age of first student: %d\n", ptr->age);
   return 0;
}
```



Untitled13.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
<global>
Management
Projects Files FSymbols
Workspace
Untitled2.c Untitled3.c Untitled4.c Untitled5.c Untitled6.c Untitled7.c Untitled8.c Untitled9.c Untitled10.c Untitled11.c Untitled12.c Untitled13.c *Untitled14
C:\Users\Mubashir\Desktop\Untitled13.exe
Logs & others
Code::Blocks Search results Cccc Build log Build messages Doxy
C:\Users\Mubashir\Desktop\Untitled13.c C/C++ Windows (CR+LF) WINDOWS-1252 Line 15, Col 1, Pos 255 Insert Read/Write default
8:30 AM
9/9/2023

```
#include <stdio.h>

struct Student {
    char name[50];
    int age;
};

int main() {
    struct Student students[3];
    struct Student *ptr = students;
    ptr->age = 20;
    printf("Age of first student: %d\n", ptr->age);
    return 0;
}
```

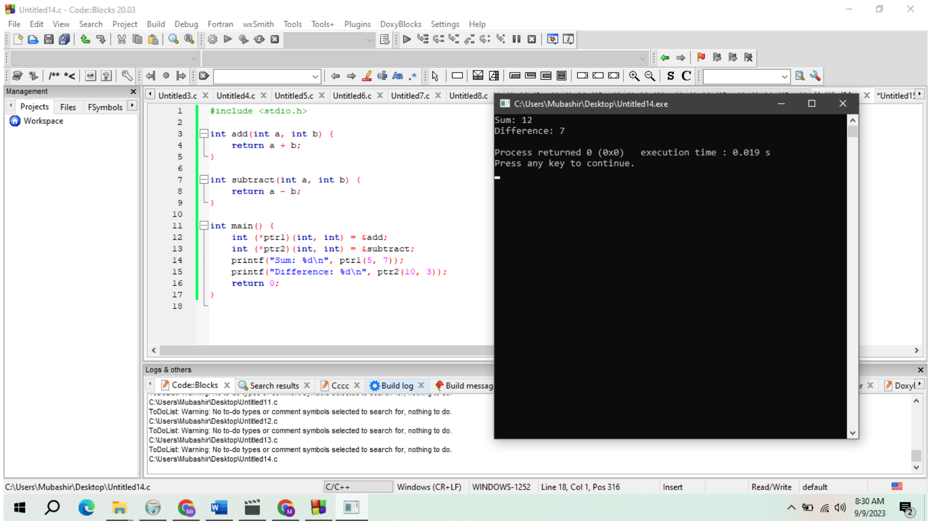
```
Age of first student: 20

Process returned 0 (0x0)   execution time : 0.016 s
Press any key to continue.
```

```
C:\Users\Mubashir\Desktop\Untitled10.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled11.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled12.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled13.c
```

Program # 14

Output:

```
#include <stdio.h>
int add(int a, int b) {
    return a + b;
}
int subtract(int a, int b) {
    return a - b;
}
int main() {
    int (*ptr1)(int, int) = &add;
    int (*ptr2)(int, int) = &subtract;
    printf("Sum: %d\n", ptr1(5, 7));
    printf("Difference: %d\n", ptr2(10, 3));
    return 0;
}
```



Untitled14.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Management
Projects Files FSymbols
Workspace
Untitled3.c Untitled4.c Untitled5.c Untitled6.c Untitled7.c Untitled8.c *Untitled1
C:\Users\Mubashir\Desktop\Untitled14.exe
Logs & others
Code::Blocks Search results Cccc Build log Build messag Doxy
C:\Users\Mubashir\Desktop\Untitled14.c
C/C++ Windows (CR+LF) WINDOWS-1252 Line 18, Col 1, Pos 316 Insert Read/Write default
8:30 AM
9/9/2023

```
#include <stdio.h>

int add(int a, int b) {
    return a + b;
}

int subtract(int a, int b) {
    return a - b;
}

int main() {
    int (*ptr1)(int, int) = &add;
    int (*ptr2)(int, int) = &subtract;
    printf("Sum: %d\n", ptr1(5, 7));
    printf("Difference: %d\n", ptr2(10, 3));
    return 0;
}
```

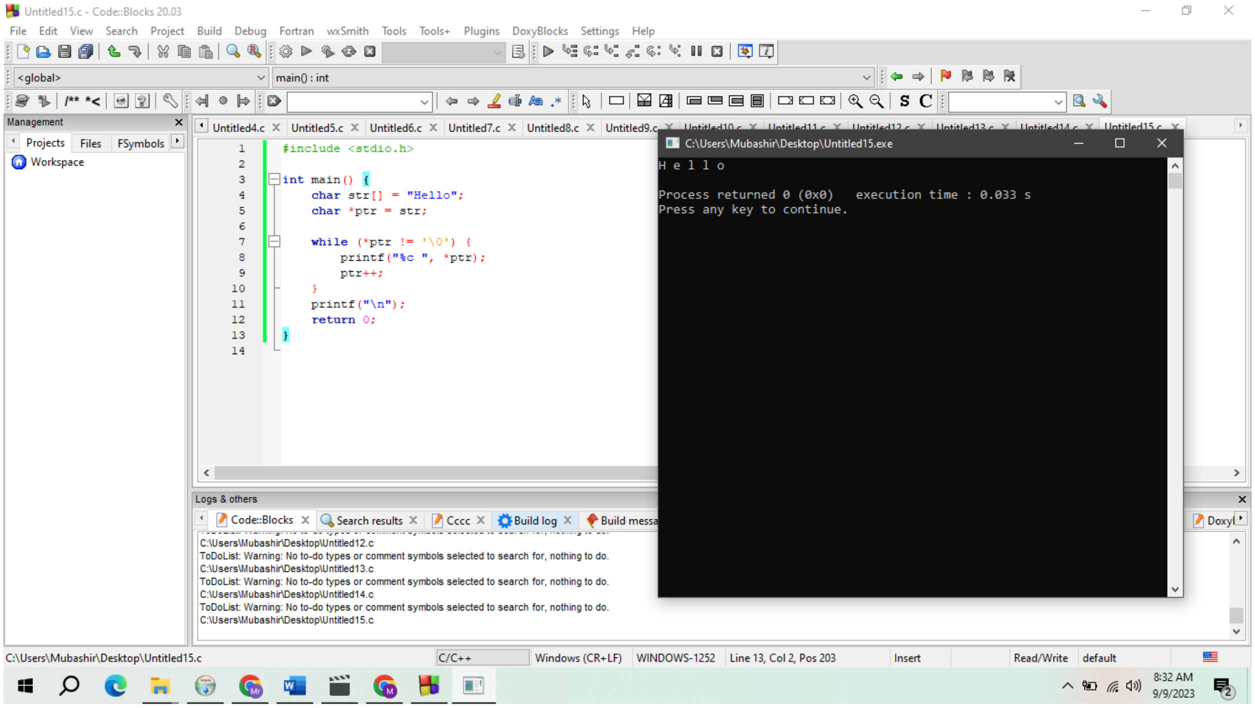
```
Sum: 12
Difference: 7

Process returned 0 (0x0)   execution time : 0.019 s
Press any key to continue.
```

```
C:\Users\Mubashir\Desktop\Untitled11.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled12.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled13.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled14.c
```

Program # 15

```
#include <stdio.h>
int main() {
    char str[] = "Hello";
    char *ptr = str;
    while (*ptr != '\0') {
        printf("%c ", *ptr);
        ptr++;
    }
    printf("\n");
    return 0;
}
```

Output:



Untitled15.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
<global>
main() : int
Management
Projects Files FSymbols
Workspace
Untitled4.c Untitled5.c Untitled6.c Untitled7.c Untitled8.c Untitled9.c Untitled10.c Untitled11.c Untitled12.c Untitled13.c Untitled14.c Untitled15.c
C:\Users\Mubashir\Desktop\Untitled15.exe
Logs & others
Code::Blocks Search results Cccc Build log Build messa
Doxy

```
#include <stdio.h>

int main() {
    char str[] = "Hello";
    char *ptr = str;

    while (*ptr != '\0') {
        printf("%c ", *ptr);
        ptr++;
    }
    printf("\n");
    return 0;
}
```

```
H e l l o

Process returned 0 (0x0)   execution time : 0.033 s
Press any key to continue.
```

```
C:\Users\Mubashir\Desktop\Untitled12.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled13.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled14.c
ToDoList: Warning: No to-do types or comment symbols selected to search for, nothing to do.
C:\Users\Mubashir\Desktop\Untitled15.c
```