

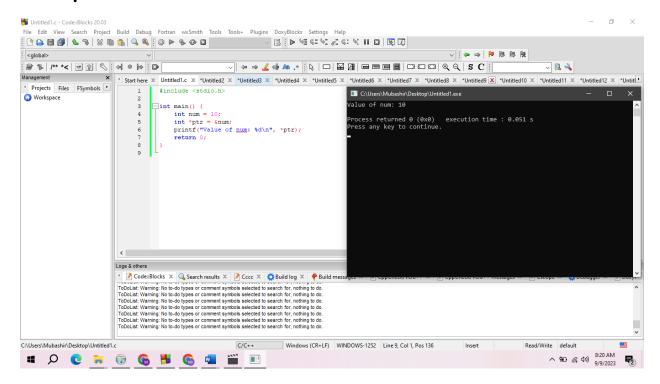
COMSATS University Islamabad, Vehari Campus

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

Program # 1 Output:

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

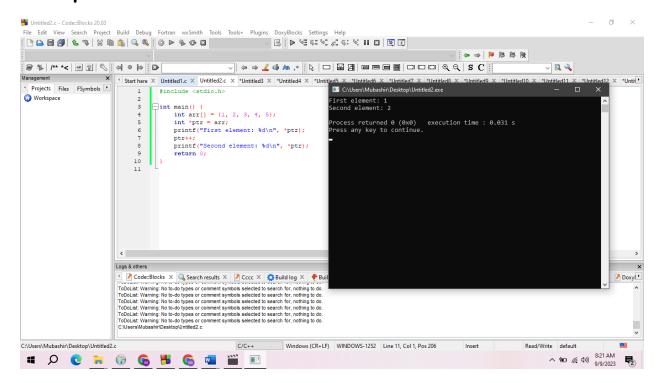
Output:



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:



Program # 3 Output:

```
#include <stdio.h>
int main() {
          int num = 10;
          int *ptr1 = #
          int **ptr2 = &ptr1;
          printf("Value of num: %d\n", **ptr2);
           return 0;
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int num = 10;
int *ptrl = #
int **ptr2 = &ptrl;
printf("Value of num; %d\n", **ptr2);
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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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   int num = 5;
   increment(&num);
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    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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  int arr[] = {1, 2, 3, 4, 5};
  int *ptr = arr;
  for (int i = 0; i < 5; i++) {
     printf("%d ", *(ptr + i));
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Program # 6 Output:

```
#include <stdio.h>
int main() {
                            char *str = "Hello, World!";
                          printf("String: %s\n", str);
                            return 0;
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    char *str = "Hello, World!";
    printf("String: %s\n", str);
    return 0;
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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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                                                                                               int main() {
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int 'ptr = (int *)malloc(sizeof(int));
if (ptr != NULL) {
    *ptr = 42;
    printf("Dynamic memory value: %d\n", *ptr);
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Program # 8 Output:

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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;
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int arr[] = {1, 2, 3, 4, 5};
int ('ptr)[5] = &arr;
printf("First element: %d\n", (*ptr)[0]
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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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Program # 10 Output:

```
#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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int *ptrl = &numl, *ptr2 = &num2;
if (ptrl == ptr2) {
    printf("Pointers are equal.\n");
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```

Program # 11 Output:

```
#include <stdio.h>
int main() {
           int num = 42;
          void *ptr = #
           printf("Value through void pointer: %d\n", *(int *)ptr);
          return 0;
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void *ptr = #
                                                                                                                   printf("Value through void pointer: %d\n", *(int *)ptr);
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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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| Int main() {
    struct Point p = (3, 5);
    struct Point 'ptr = 45;
    printf("Coordinates: (%d, %d)\n", ptr→x, ptr→y);
    return 0;
}
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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;
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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;
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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:

