2022-10-02
C Programming

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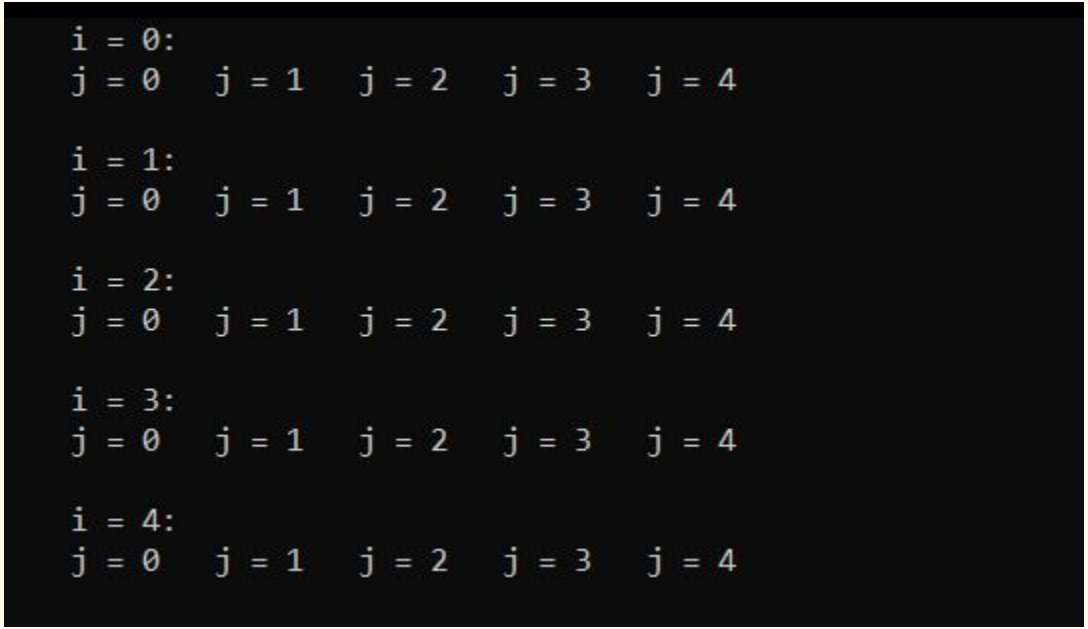
Contents

Nested Loops:

```
for(initialization; condition; update){
    // outer loop statements
    for(initialization; condition; update){
        // inner loop statements
    }
}
```

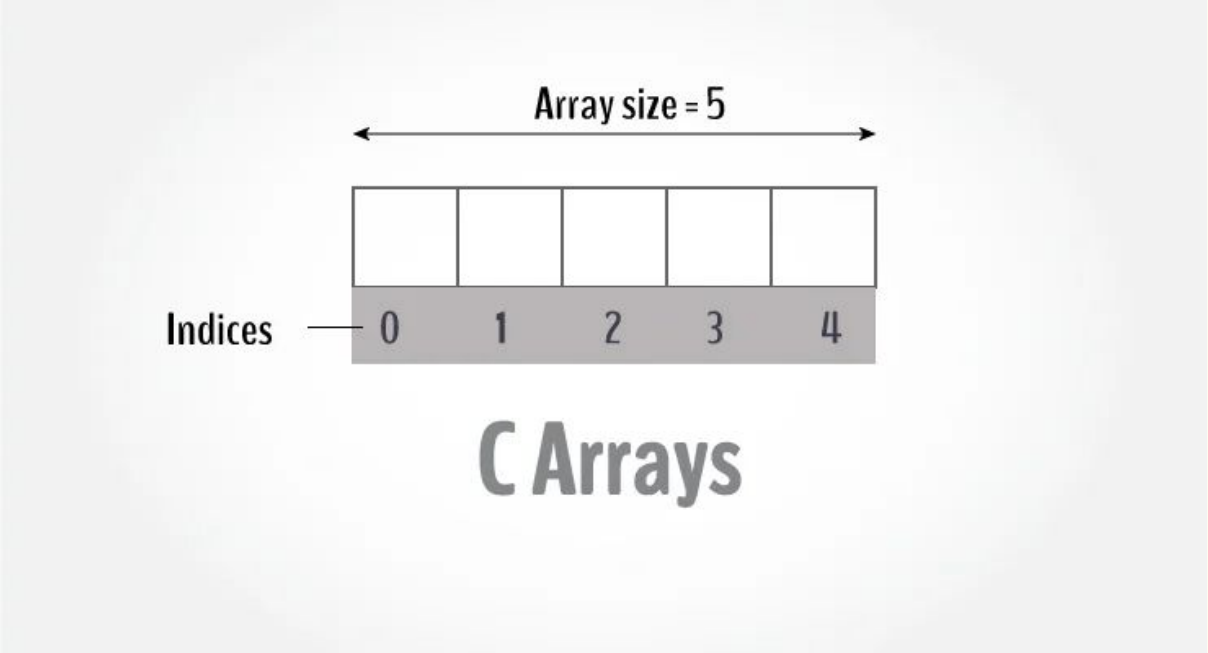
```
for(int i=0; i<5; i++){
    printf("i = %d:", i);
    puts("");
    for(int j=0; j<5; j++)
        printf("\t j = %d ", j);
    puts("");
}
```

Nested Loops:



Example's Output

1-D Array:



https://www.programiz.com/c-programming/c-arrays

1-D Array:

```
// initialize an array
int arrayName[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};

// access element in an array
// first element
int a = arrayName[0];

// last element
int b = arrayName[9];
```

Example

Common Errors:

```c
#include <stdio.h>
int main(){
    for(int i=0; i<3; i++){
        printf("i = %d\n", i);
        for(int j=0; i<3; i++)
            printf("\t%d ", j);
    }
    return 0;
}
```

Code

```
i = 0
        0       0       0
```

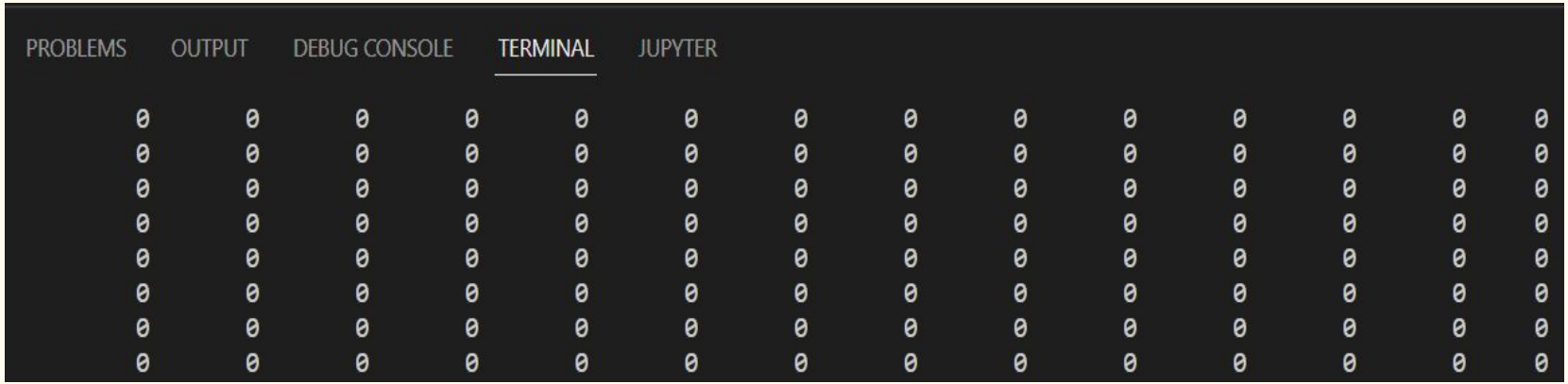
Output

Common Errors:

Code

```c
#include <stdio.h>
int main(){
    for(int i=0; i<3; i++){
        printf("i = %d\n", i);
        for(int j=0; j<3; i++)
            printf("\t%d ", j);
    }
    return 0;
}
```

Output



Common Errors:

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

Code

```
1 2 3 4 5 0
```

Output

Common Errors:

```c
#include <stdio.h>
int main(){
    int arr[5];
    for(int i=0; i<=5; i++){
        arr[i] = arr[i] + i;
        printf("%d ", arr[i]);
    }
    return 0;
}
```

Code

Output

Exercises:

Exercise 1:

- Create a set from an array
- Use the above set to count the number of times that the unique elements appear in the array

Exercise 2:

- Find the position of a segment in an array using absolute difference
- Find the position of a segment in a modified (scaled) array