


Assignment Code for Programming in C

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13. **Max Frequency Character in String** (Same as 9)

1. Reverse the Order of Elements in an Array

Code:

```
1 #include <stdio.h>
2
3 int main() {
4     int n;
5
6     printf("Input the number of elements to store in the array: ");
7     scanf("%d", &n);
8
9     int arr[n];
10    printf("Input %d number of elements in the array:\n", n);
11    for(int i = 0; i < n; i++) {
12        printf("element - %d : ", i);
13        scanf("%d", &arr[i]);
14    }
15
16    printf("\nThe values stored into the array are: ");
17    for(int i = 0; i < n; i++) {
18        printf("%d ", arr[i]);
19    }
20
21    printf("\nThe values stored into the array in reverse are: ");
22    for(int i = n - 1; i >= 0; i--) {
23        printf("%d ", arr[i]);
24    }
25
26    return 0;
27 }
```

Input the number of elements to store in the array: 2
Input 2 number of elements in the array:
element - 0 : 12
element - 1 : 2

The values stored into the array are: 12 2
The values stored into the array in reverse are: 2 12

--- Code Execution Successful ---

2. Sum of All Elements of an Array

Code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5
6     printf("Input the number of elements to be stored in the array: ");
7     scanf("%d", &n);
8
9     int arr[n];
10    printf("Input %d elements in the array:\n", n);
11    for(int i = 0; i < n; i++) {
12        printf("element - %d : ", i);
13        scanf("%d", &arr[i]);
14        sum += arr[i];
15    }
16
17    printf("Sum of all elements stored in the array is: %d\n", sum);
18    return 0;
19 }
```

Input the number of elements to be stored in the array: 2
Input 2 elements in the array:
element - 0 : 8
element - 1 : 9
Sum of all elements stored in the array is: 17

--- Code Execution Successful ---

3. Count Total Number of Duplicate Elements in an Array

Code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int n, count = 0;
5
6     printf("Input the number of elements to be stored in the array: ");
7     scanf("%d", &n);
8
9     int arr[n];
10    printf("Input %d elements in the array:\n", n);
11    for(int i = 0; i < n; i++) {
12        printf("element - %d : ", i);
13        scanf("%d", &arr[i]);
14    }
15
16    for(int i = 0; i < n; i++) {
17        for(int j = i + 1; j < n; j++) {
18            if(arr[i] == arr[j]) {
19                count++;
20                break;
21            }
22        }
23    }
24
25    printf("Total number of duplicate elements found in the array is: %d\n", count);
26    return 0;
27 }
```

Output

Input the number of elements to be stored in the array: 4
Input 4 elements in the array:
element - 0 : 2
element - 1 : 3
element - 2 : 4
element - 3 : 2
Total number of duplicate elements found in the array is: 1

--- Code Execution Successful ---

4. Print All Unique Elements in an Array

Code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Input the number of elements to be stored in the array: ");
6     scanf("%d", &n);
7     int arr[n];
8     printf("Input %d elements in the array:\n", n);
9     for(int i = 0; i < n; i++) {
10        printf("element - %d : ", i);
11        scanf("%d", &arr[i]);
12    }
13    printf("The unique elements found in the array are: ");
14    for(int i = 0; i < n; i++) {
15        int is_unique = 1;
16        for(int j = 0; j < n; j++) {
17            if(i != j && arr[i] == arr[j]) {
18                is_unique = 0;
19                break;
20            }
21        }
22        if(is_unique) {
23            printf("%d ", arr[i]);
24        }
25    }
26    return 0;
27 }
```

Output

Input the number of elements to be stored in the array: 4
Input 4 elements in the array:
element - 0 : 3
element - 1 : 4
element - 2 : 5
element - 3 : 6
The unique elements found in the array are: 3 4 5 6

--- Code Execution Successful ---

5. Find the Maximum and Minimum Elements in an Array

Code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Input the number of elements to be stored in the array: ");
6     scanf("%d", &n);
7     int arr[n];
8     printf("Input %d elements in the array:\n", n);
9     for(int i = 0; i < n; i++) {
10         printf("element - %d : ", i);
11         scanf("%d", &arr[i]);
12     }
13     int max = arr[0], min = arr[0];
14     for(int i = 1; i < n; i++) {
15         if(arr[i] > max) {
16             max = arr[i];
17         }
18         if(arr[i] < min) {
19             min = arr[i];
20         }
21     }
22     printf("The maximum element is: %d\n", max);
23     printf("The minimum element is: %d\n", min);
24     return 0;
25 }
```

Output

```
Input the number of elements to be stored in the array: 4
Input 4 elements in the array:
element - 0 : 5
element - 1 : 6
element - 2 : 3
element - 3 : 2
The maximum element is: 6
The minimum element is: 2

--- Code Execution Successful ---7
```

6. Separate Odd and Even Integers into Separate Arrays

Code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Input the number of elements to be stored in the array: ");
6     scanf("%d", &n);
7     int arr[n], even[n], odd[n], even_count = 0, odd_count = 0;
8     printf("Input %d elements in the array:\n", n);
9     for(int i = 0; i < n; i++) {
10         printf("element - %d : ", i);
11         scanf("%d", &arr[i]);
12     }
13     for(int i = 0; i < n; i++) {
14         if(arr[i] % 2 == 0) {
15             even[even_count++] = arr[i];
16         } else {
17             odd[odd_count++] = arr[i];
18         }
19     }
20     printf("The Even elements are: ");
21     for(int i = 0; i < even_count; i++) {
22         printf("%d ", even[i]);
23     }
24     printf("\n\nThe Odd elements are: ");
25     for(int i = 0; i < odd_count; i++) {
26         printf("%d ", odd[i]);
27     }
28     return 0;
29 }
30
```

Output

```
Input the number of elements to be stored in the array: 4
Input 4 elements in the array:
element - 0 : 3
element - 1 : 5
element - 2 : 6
element - 3 : 7
The Even elements are: 6
The Odd elements are: 3 5 7

--- Code Execution Successful ---
```

7. Print Individual Characters of a String in Reverse Order

Code:

```
C main.c > ...
2  /*__DEVOLPER__ = " MAHDI HASAN SHUVO ";
4  //__LinkedIn__ = "mahdi-hasan-shuvo";*/
5  #include <stdio.h>
6  #include <string.h>
Windsurf: Refactor | Explain | Generate Function Comment | × | ↕
7  int main() {
8      char str[100];
9      printf("Input the string: ");
10     fgets(str, sizeof(str), stdin);
11     int len = strlen(str);
12     printf("The characters in reverse order are: ");
13     for(int i = len - 2; i >= 0; i--) { // len - 2 to exclude newline character
14         printf("%c ", str[i]);
15     }
16
17     return 0;
18 }
19
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
PS M:\Gast project\Clint-58> & 'm:\Gast project\Clint-58\main.exe'
Input the string: Mahdi hasan shuvo
The characters in reverse order are: o v u h s   n a s a h   i d h a M
PS M:\Gast project\Clint-58> 
```

8. Count the Total Number of Words in a String

Code:

```
C main.c > main()
5  #include <stdio.h>
6  #include <string.h>
7
8  int main() {
9      char str[100];
10     printf("Input the string: ");
11     fgets(str, sizeof(str), stdin);
12     int count = 1; // For the first word
13     for(int i = 0; str[i] != '\0'; i++) {
14         if(str[i] == ' ' || str[i] == '\n') {
15             count++;
16         }
17     }
18     printf("Total number of words in the string: %d\n", count);
19     return 0;
20 }
```

Windsurf: Refactor | Explain | Generate Function Comment | × | ↗

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
● PS M:\Gast project\Clint-58> & 'm:\Gast project\Clint-58\main.exe'
Input the string: Mahdi hasan Shuvo
Total number of words in the string: 4
○ PS M:\Gast project\Clint-58> 
```

9. Find the Maximum Number of Characters in a String (Frequency)

Code:

```
main.c
1  #include <stdio.h>
2  #include <string.h>
3
4  int main() {
5      char str[100];
6      int freq[256] = {0}; // Frequency array for all ASCII characters
7
8      printf("Input the string: ");
9      fgets(str, sizeof(str), stdin);
10
11     for(int i = 0; str[i] != '\0'; i++) {
12         freq[str[i]]++;
13     }
14
15     int max_freq = 0;
16     char max_char;
17     for(int i = 0; i < 256; i++) {
18         if(freq[i] > max_freq) {
19             max_freq = freq[i];
20             max_char = i;
21         }
22     }
23
24     printf("The Highest frequency of character '%c' appears %d times\n", max_char, max_freq);
25     return 0;
26 }
```

Output

```
Input the string: Mahdi shuvo
The Highest frequency of character 'h' appears 2 times

=== Code Execution Successful ===
```

10. Swap Two Numbers Using a Function

Code:

```
main.c  [Icons] [Share] [Run] Output
1 #include <stdio.h>
2
3 void swap(int *a, int *b) {
4     int temp = *a;
5     *a = *b;
6     *b = temp;
7 }
8
9 int main() {
10     int num1, num2;
11
12     printf("Input 1st number: ");
13     scanf("%d", &num1);
14     printf("Input 2nd number: ");
15     scanf("%d", &num2);
16
17     printf("Before swapping: n1 = %d, n2 = %d\n", num1, num2);
18
19     swap(&num1, &num2);
20
21     printf("After swapping: n1 = %d, n2 = %d\n", num1, num2);
22     return 0;
23 }
```

Input 1st number: 8
Input 2nd number: 3
Before swapping: n1 = 8, n2 = 3
After swapping: n1 = 3, n2 = 8

=== Code Execution Successful ===

11. Check Whether a Number is Prime or Not Using a Function

Code:

```
main.c  [Icons] [Share] [Run] Output
1 #include <stdio.h>
2
3 int is_prime(int num) {
4     if(num <= 1) return 0;
5     for(int i = 2; i * i <= num; i++) {
6         if(num % i == 0) return 0;
7     }
8     return 1;
9 }
10
11 int main() {
12     int num;
13
14     printf("Input a positive number: ");
15     scanf("%d", &num);
16
17     if(is_prime(num)) {
18         printf("The number %d is a prime number.\n", num);
19     } else {
20         printf("The number %d is not a prime number.\n", num);
21     }
22     return 0;
23 }
```

Input a positive number: 22
The number 22 is not a prime number.

=== Code Execution Successful ===

12. Find the Largest Element of an Array Using a Function

Code:

main.c	Output
<pre>1 #include <stdio.h> 2 3 int largest(int arr[], int n) { 4 int mex = arr[0]; 5 for(int i = 1; i < n; i++) { 6 if(arr[i] > mex) { 7 mex = arr[i]; 8 } 9 } 10 return mex; 11 } 12 13 int main() { 14 int n; 15 printf("Input the number of elements to be stored in the array: "); 16 scanf("%d", &n); 17 18 int arr[n]; 19 printf("Input %d elements in the array:\n", n); 20 for(int i = 0; i < n; i++) { 21 printf("element - %d : ", i); 22 scanf("%d", &arr[i]); 23 } 24 25 printf("The largest element in the array is: %d\n", largest(arr, n)); 26 return 0; 27 } 28</pre>	<pre>Input the number of elements to be stored in the array: 2 Input 2 elements in the array: element - 0 : 3 element - 1 : 2 The largest element in the array is: 3 --- Code Execution Successful ---</pre>