

## C Programs for Practice (Pointers)

### 1. C Program to return a Pointer from a Function

```
// C program to illustrate the concept of
// returning pointer from a function
#include <stdio.h>

// Function that returns pointer
int* fun()
{
    // Declare a static integer
    static int A = 10;
    return (&A);
}

// Driver Code
int main()
{
    // Declare a pointer
    int* p;

    // Function call
    p = fun();

    // Print Address
    printf("%p\n", p);

    // Print value at the above address
    printf("%d\n", *p);
    return 0;
}
```

### 2. C Program to determine the largest element in an Array using Pointers

```
// C program for finding the
// largest array element using pointers
#include <stdio.h>
#include <stdlib.h>

// Function to find the largest element
// using dynamic memory allocation
void findLargest(int* arr, int N)
{

```

```

    int i;

    // Traverse the array arr[]
    for (i = 1; i < N; i++) {
        // Update the largest element
        if (*arr < *(arr + i)) {
            *arr = *(arr + i);
        }
    }

    // Print the largest number
    printf("%d ", *arr);
}

// Driver Code
int main()
{
    int i, N = 4;

    int* arr;

    // Memory allocation to arr
    arr = (int*)calloc(N, sizeof(int));

    // Condition for no memory
    // allocation
    if (arr == NULL) {
        printf("No memory allocated");
        exit(0);
    }

    // Store the elements
    *(arr + 0) = 14;
    *(arr + 1) = 12;
    *(arr + 2) = 19;
    *(arr + 3) = 20;

    // Function Call
    findLargest(arr, N);
    return 0;
}

```

### 3. C Program to check for Palindrome string using Pointers

```

// C program to check if a string is palindrome

```

```

// using pointers

#include <stdio.h>

// Function to check if the string is palindrome
// using pointers
void isPalindrome(char* string)
{
    char *ptr, *rev;

    ptr = string;

    while (*ptr != '\0') {
        ++ptr;
    }
    --ptr;

    for (rev = string; ptr >= rev;) {
        if (*ptr == *rev) {
            --ptr;
            rev++;
        }
        else
            break;
    }

    if (rev > ptr)
        printf("String is Palindrome");
    else
        printf("String is not a Palindrome");
}

// Driver code
int main()
{
    char str[1000] = "madam";

    isPalindrome(str);

    return 0;
}

```