

Programming and Problem Solving through C Language O Level / A Level

Chapter - 9 : Pointers

Program #1– To find the largest of “n” elements entered by user. Use the dynamic memory to store the data and calloc () function.

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

void main( )
{
    int n, i, *ptr, r;

    printf("Enter number of Elements : ");
    scanf("%d", &n);

    ptr=(int*) calloc(n , sizeof(int));

    if(ptr==NULL)
    { printf("Error ! Memory not allocated.");
      exit(0);
    }

    printf("Enter Elements of Array: ");
    for(i=0; i<n ; i++)
    { scanf("%d", &ptr[i]);
    }

    // Assign the first value in the array to “r”
    r=ptr[0];
    for(i=0; i<n ; i++)
    {
        if(r < ptr[i] )
            r=ptr[i];
    }

    printf("\n Greatest = %d", r);
}
```

Program #2 – To find the smallest of “n” elements entered by user. Use the dynamic memory to store the data and calloc () function.

```
#include<stdio.h>
#include<alloc.h>
#include<stdlib.h>
void main( )
{
    int n, i, *ptr, r;

    printf("Enter number of Elements : ");
    scanf("%d", &n);

    ptr=(int*) calloc(n , sizeof(int));

    if(ptr==NULL)
    { printf("Error ! Memory not allocated.");
      exit(0);
    }

    printf("Enter Elements of Array: ");
    for(i=0; i<n ; i++)
    { scanf("%d", &ptr[i]);
      }

    // Assign the first value in the array to “r”
    r=ptr[0];
    for(i=0; i<n ; i++)
    {
        if(r > ptr[i] )
            r=ptr[i];
    }

    printf("\n Smallest = %d", r);
}
```

Program #3 – To swap the value of two variable using pointers.

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

// This function accepts the address of two arguments and
// interchange its value by moving the address between pointers

void swap( int * x , int *y)
{
    int *t;

    t=x; // moves the address of x to t
    x=y; // moves the address of y to x
    y=t; // moves the address of t to x
}

void main()
{
    int a,b;

    printf("Enter two number : ");
    scanf("%d %d", &a, &b );

    printf("Value of a and b before swap");
    printf(" a= %d b =%d", a , b);

    // call the swap function and pass the address of arguments
    // it is also known as call by reference
    swap(&a, &b)

    printf("Value of a and b before swap");
    printf(" a= %d b =%d", a , b);
}
```

Program #4 – To read 2 strings , concatenate and print the third string.

```
#include<stdio.h>
#include<alloc.h>
#include<string.h>

void main()
{
    char *s1 , *s2, *s3;
    int n, L1, L2, L3;

    printf("Enter the length for String : ");
    scanf("%d", &n);

    s1=(char*) calloc(n, sizeof(char) );
    printf("Enter the String-1 : ");
    gets(s1);

    s2=(char*) calloc(n, sizeof(char) );
    printf("Enter the String-2 : ");
    gets(s2);

    for(L1=0; s1[L1] != '\0'; L1++);
    for(L2=0; s2[L2] != '\0'; L2++);

    L3=L1+L2+1;
    s3=(char*) calloc(L3, sizeof(char) );

    strcpy( s3, s1);
    strcat( s3, s2);

    printf("String -3 - %s", s3);

}
```