```
Lab Progran- 1
                      a madening of a
 Swapping Uning Dointors!
  # include <stdio. h>
  void Swall (int *a, int *b) &
 Asmaz int rotumb = taj
strends intimation = the ; murinimi
  brings and * b = temp; proves out in
    int inquire () Lie ut 10/11 tolled
    Print f ("Entor the first number:");
       Sconf (" 1/1 d", num!);
       Printf ("Enter the Second number:");
       Sconf ("1.d", num 2)
  Print F (4 Before Swapping : num! = 1.d,
   num 2 = 1 -d \n", num 1, num 2);
   Swap (frum 1., grum 2);
  Printf ("After Swapping: num1=1.d,
 mum 2 = 1.d (n", num1, num2);
  return 0;
```

```
Enter the first number: 10,
 Outbut !
          Enter the Sewnol number: 15
 Before Swapping: num 1 = 10, num 2 = 15
  after Swapping num 1 = 15, num 2 = 10
        Prg-2
 #
dynamic numbry allo cosion
# include a stdio. h.
  vaid mallocex(int);
  Void Calloc Ex Cint);
 void mais COTT . 19 " bound stange
 E
   int n ',
   Printt l'e Enter the value of n'in's.
                     ( 1849 ) sort
   Scant ("1-d", &n);
   Mallocex (n);
   collocEx (n); (a tail x I valla) box
  2
  void MallocEx (int n)
  coor [n]: ++ ]: n > 1; 0 = 1
    Ptr = Cint * ) malloc (n " Size of (int));
    for (1=0; icn; ititi)
       Pt& [i]= 1+1;
```

```
Printf ("molloc dynamic memory allocationly)
   Print & ("the Elements of avoidy are: [h")
  tor Ci=o; i <n ;;++)
Drintt ("old", Otr [i]);
      3
      Printt (" nollo c dynamic menory
            alwestion In");
     Print & (" the Elemente of army are: 18:1)
          (i=0; i < h'; i++) = = 0 North
          Printt ("Mid", Pts [i]) juice.
      Printt ("In").
      free (Pto);
                    Sant ("Hd", &n);
    P
    yord Calloc Ex Cint n) ((n) x doollog
    5
       int i; (int i) x Franch br.
       int over J.
       Ptr = (Int + ) coloc (n, Size of (int));
       for (i=0 ',1 < n'; (++)
       3
                  1+1 = [ 1 ] a 14
```

```
in to make it with it is to the
 Output.
Printe (" calloc dynamic minory allocation In");
 Printt (" he Elements of away are: \n").
  for occures 1< noit+)
       Print & ("1.d", Pto [1])
   Printf ("In");
   Print ("Realise dynamic numby allocation \n");
   Print ("the Rements of avery are: (h");
   N=15;
Pto = (int d) realise (Pto, n) gracoj (int).
   for Ci=10 years provide pour posteriors
       Properties it!; promer survayed a all
     2
    for (i=0; i <n; i+t) b thunds us
    Print & Carry d", Ptr EiJ); " allow)
            ever para lo stremble est
toce (bts); 626 5002 620 2924521
```

```
Stock Implementalis
 # include < Stolio.h >
 # include < Stalib. h >
# dynic STZE 4
Int top = -1; (0) 1000 3
int inp - array bilings of the
void Puhl);
void POP ():
 void Show ();
                          ( ) design
  Proid main ()
 E
   int ch;
                    (1-350==40t) Li
   While (1)
   Print+ (" Operations on State (": "In");
    Print (1:1. Puch the Elemente + \n2. Pop the
            Element In3. Show (nh. End (n");
     Stank (maked , 18ch); ") -1100
    Switch (ch) " 1/1 10 000 1 11 his babo
           (xg " pt. ) + was
      cose 1;
        Pueh_(e)[90] parco_And
         brook;
      Cose 2!
          POP ()
         break; (1- = = 401) +1
```

Program - 3

```
cosc 3:
            Show ()
              break; 1. 1. 100 % >
           Cose li:
             & suit (0):
          desaut i (" Imalid Choice ( n').
        3
   you'd punc)
  & int x;
   ij (top = = size-1)
    de Print of (" overflow \n");
 0.00+ (11.12h) the Elements (11.140) to
· ( a) wind wars. End true wind
     Printt Cuentino the element to be
       added in grack: In").
       Swan + ("Yd", 8x);
        top = top+1
        In P-array [top] = x
   void por ()
          (ton== -1) : yourd
```

```
Print (- (" land of bw. (n"));
            2) Pop the Elevent
    Elec
     Z
      Printf ('Popped Element: il d'm"
          Inp_avoy Crob] 3);
          ton = tor -1; capulan
               Our apout on stack;
 3
void Show ()
  & if Ctob==-1) travall suf 404 (3
     Printf (" underflow \n");
 L'Orinte l'Elemente in spack are l'in );
    printe (" y.d in ", in R= away (17).
    2
                 2) 80P tu Sterrent
```

Obvertions on Stade; 1) puch the rement 2) Pop the greenent 3) Show 4) End Entor the chorce! 3 Ilyon more and ·1 - 40 : 40 ; Unoloylow Operations on Stack; 1. Ouch the klement; 2) Pop the Rement (== = stod) ;; 3) Show · ("af warfacano ") + 1 misto us and boton the Charce Enter the lunert to be added rin stades of travel of trail 5 Opowshions on Stack. o puch the Glement 2) Pop the klement show as end Enter the Choice

Entor the blement to be added in strack. hal 3 mile on stades, margodi a died Obustions De Push the Rumin Bri book is to see the 2) i pop the Glement wine to Single Chamadin (purish of chine) . (canda) + stodassio / (divide) and Enter the moice: Enter the humant to oble s removed. It Element 3. H: Britte > 9 Lastini 14 3 POPPED OOI XAM saints It Chan Stack [MAX]; Char infin [MAX]; Char Poslix [MHX];. :1 -= 40+ +M void push (thor); () 809 () int is Empty (); void in Topost (); · C) tair blov int Proceemsonce (chan) () dian thi

```
#include <stdio.h>
void swap(int *a, int *b)
int temp=*a;
*a=*b;
*b=temp;
int main()
int num1, num2;
printf("enter the first number\n");
scanf("%d",&num1);
printf("enter the second number\n");
scanf("%d",&num2);
printf("before swapping num1=%d, num2=%d\n",num1, num2);
swap(&num1,&num2);
printf("after swapping num1=%d, num2=%d\n",num1, num2);
return 0;
```

enter the first number

10

enter the second number

15

before swapping num1=10, num2=15

after swapping num1=15, num2=10

```
#include <stdio.h>
#include <stdlib.h>
void* myMalloc(size_t size) {
    return malloc(size);
void* myRealloc(void* ptr, size_t size) {
    return realloc(ptr, size);
void* myCalloc(size_t num, size_t size) {
    return calloc(num, size);
void myFree(void* ptr) {
    free(ptr);
int main() {
    int *arr1, *arr2;
    size_t size;
    printf("Enter the size of the array: ");
    scanf("%zu", &size);
    arr1 = (int*)myMalloc(size * sizeof(int));
    if (arr1 == NULL) {
        printf("Memory allocation failed.\n");
        return 1;
    printf("Enter elements of the array:\n");
```

```
printf("Element %zu: ", i + 1);
    scanf("%d", &arr1[i]);
printf("Elements of the array (malloc):\n");
for (size_t i = 0; i < size; i++) {</pre>
    printf("%d ", arr1[i]);
printf("\n");
size *= 2;
arr2 = (int*)myRealloc(arr1, size * sizeof(int));
if (arr2 == NULL) {
    printf("Memory reallocation failed.\n");
    myFree(arr1);
    return 1;
printf("Enter additional elements of the array:\n");
for (size_t i = size / 2; i < size; i++) {</pre>
    printf("Element %zu: ", i + 1);
    scanf("%d", &arr2[i]);
printf("Elements of the array (realloc):\n");
for (size_t i = 0; i < size; i++) {</pre>
    printf("%d ", arr2[i]);
printf("\n");
myFree(arr2);
return 0;
```

```
Enter the size of the array: 5
Enter elements of the array:
Element 1: 1
Element 2: 2
Element 3: 3
Element 4: 4
Element 5: 5
Elements of the array (malloc):
1 2 3 4 5
Enter additional elements of the array:
Element 6: 7
Element 7: 8
Element 8: 9
Element 9: 10
```

```
#include<stdio.h>
int stack[4],choice,n,top,x,i;
void push(void);
void pop(void);
void display(void);
int main()
    top=-1;
    printf("\n Enter the size of STACK[MAX=100]:");
    scanf("%d",&n);
    printf("\n\t STACK OPERATIONS USING ARRAY");
    printf("\n\t 1.PUSH\n\t 2.POP\n\t 3.DISPLAY\n\t 4.EXIT");
        printf("\n Enter the Choice:");
        scanf("%d",&choice);
        switch(choice)
            case 1:
                push();
                break;
            case 2:
                pop();
                break;
            case 3:
                display();
                break;
            case 4:
```

```
case 4:
                printf("\n\t EXIT POINT ");
                break;
            default:
                printf ("\n\t Please Enter a Valid Choice(1/2/3/4)");
   while(choice!=4);
    return 0;
void push()
    if(top)=n-1)
        printf("\n\tSTACK is over flow");
    else
        printf(" Enter a value to be pushed:");
        scanf("%d",&x);
        top++;
        stack[top]=x;
void pop()
    if(top<=-1)
        printf("\n\t Stack is under flow");
```

```
printf(" Enter a value to be pushed:");
        scanf("%d",&x);
        top++;
        stack[top]=x;
void pop()
    if(top<=-1)
       printf("\n\t Stack is under flow");
   else
       printf("\n\t The popped elements is %d",stack[top]);
        top--;
void display()
    if(top>=0)
       printf("\n The elements in STACK \n");
        for(i=top; i>=0; i--)
           printf("\n%d",stack[i]);
        printf("\n Press Next Choice");
   else
       printf("\n The STACK is empty");
```

```
Enter the size of STACK[MAX=100]:5
        STACK OPERATIONS USING ARRAY
        1.PUSH
        2.POP
        3.DISPLAY
        4.EXIT
Enter the Choice:3
The STACK is empty
Enter the Choice:1
Enter a value to be pushed:3
Enter the Choice:1
Enter a value to be pushed:5
Enter the Choice:3
The elements in STACK
5
Press Next Choice
Enter the Choice:2
        The popped elements is 5
Enter the Choice:3
The elements in STACK
Press Next Choice
Enter the Choice:
```