October 11, 2021

STACK IMPLEMENTATION USING ARRAY

—

```c
#include<stdio.h>
#include<stdlib.h>
#define N 5

//FUNCTIONS
void push();
void pop();
void peep();
void change();
void Display();


//GLOBAL
int stack[N];
int top=0;

//DRIVER PROGRAM
int main(){
        int choice=0;
        while(choice!=6){
                printf("\n***STACK MENU***\n\n");
                printf("\n1. PUSH");
                printf("\n2. POP");
                printf("\n3. PEEK");
                printf("\n4. CHANGE");
                printf("\n5. DISPLAY");
                printf("\n6. EXIT");
                printf("\nENTER CHOICE ");
                scanf("%d",&choice);
```

```
                        switch(choice){
                                case 1:
                                        push();
                                        break;
                                case 2:
                                        pop();
                                        break;
                                case 3:
                                        peep();
                                        break;
                                case 4:
                                        change();
                                        break;
                                case 5:
                                        Display();
                                        break;
                                case 6:
                                        exit(0);
                                default:
                                        printf("\nERROR:-> WRONG CHOICE ");
                                        break;
                        }
        }
        return 0;
}

//TO PUSH THE ELEMENTS IN STACK
void push(){
        int x;
        if(top==N){
                printf("\nOVERFLOW ON PUSH");
        }
        else{
                printf("ENTER X ");
                scanf("%d",&x);
                top++;
                stack[top]=x;
                Display();
        }
}

//TO POP THE FIRST ELEMENT FROM THE STACK
void pop(){
        if(top==0){
                printf("\n UNDERFLOW ON POP");
```

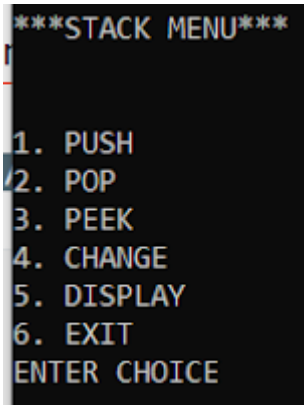
```
        }
        else{
                printf("\n%d Deleted",stack[top]);
                top--;
        }
}

//TO SEE ELEMENT AT GIVEN POSITION (LIFO)
void peep(){
        int pos,x;
        printf("ENTER POSITION ");
        scanf("%d",&pos);
        if(top-pos+1<=0){
                printf("\nUNDERFLOW ON PEEP");
        }
        else if(top-pos+1>N){
                printf("\nOVERFLOW ON PEEP");
        }
        else{
                x=stack[top-pos+1];
                printf("%d",x);
        }
}

//TO CHANGE ELEMENT AT GIVEN POSITION (LIFO)
void change(){
        int pos,x;
        printf("ENTER POSITION ");
        scanf("%d",&pos);
        if(top-pos+1<=0){
                printf("\nUNDERFLOW ON CHANGE");
        }
        else if(top-pos+1>N){
                printf("\nOVERFLOW ON CHANGE");
        }
        else{
                printf("ENTER X ");
                scanf("%d",&x);
                stack[top-pos+1]=x;
        }
}


//TO DISPLAY STACK
void Display(){
```

```
120.         int i;
121.         for(i=top;i>0;i--){
122.                 printf("%d ",stack[i]);
123.         }
124. }
```



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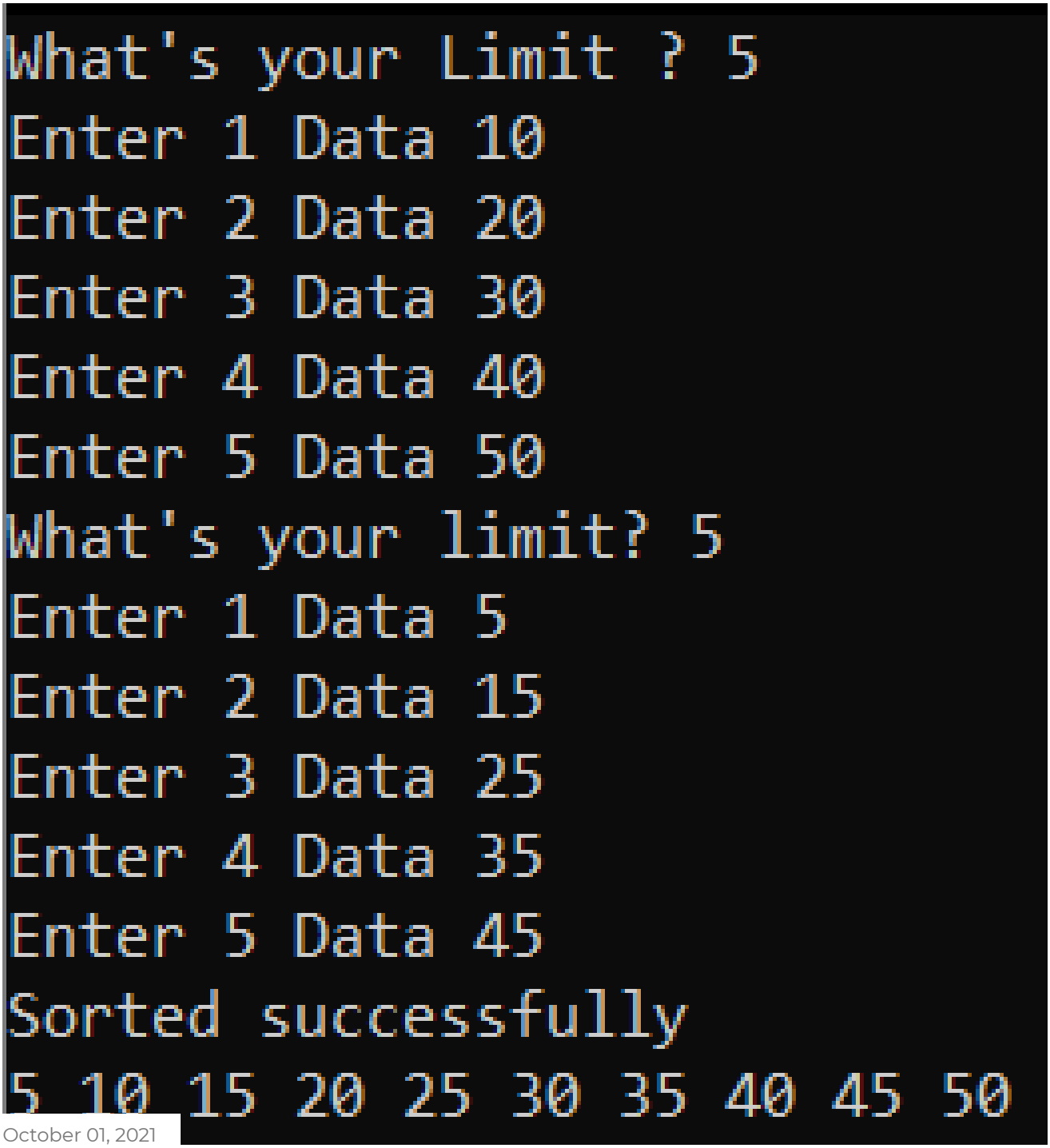

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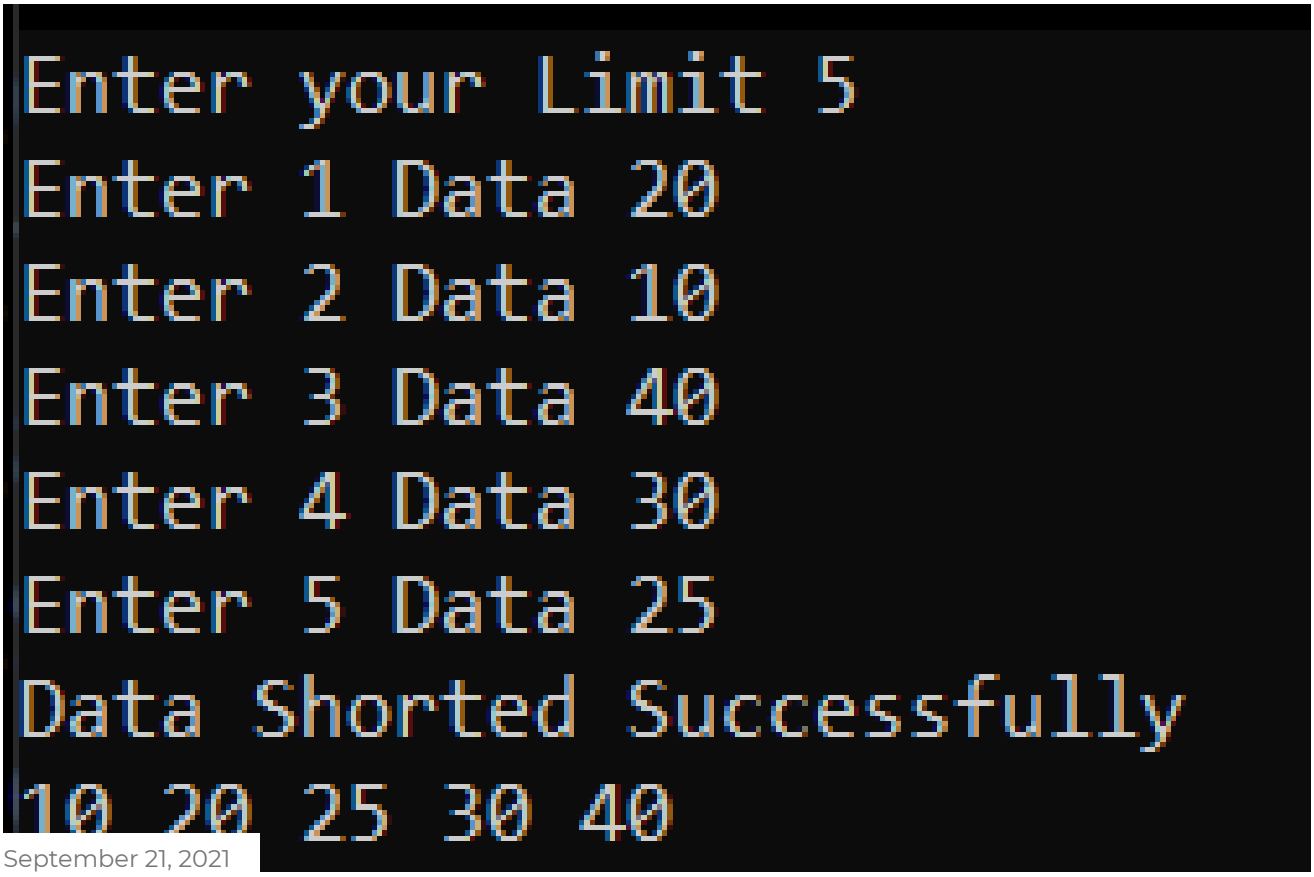

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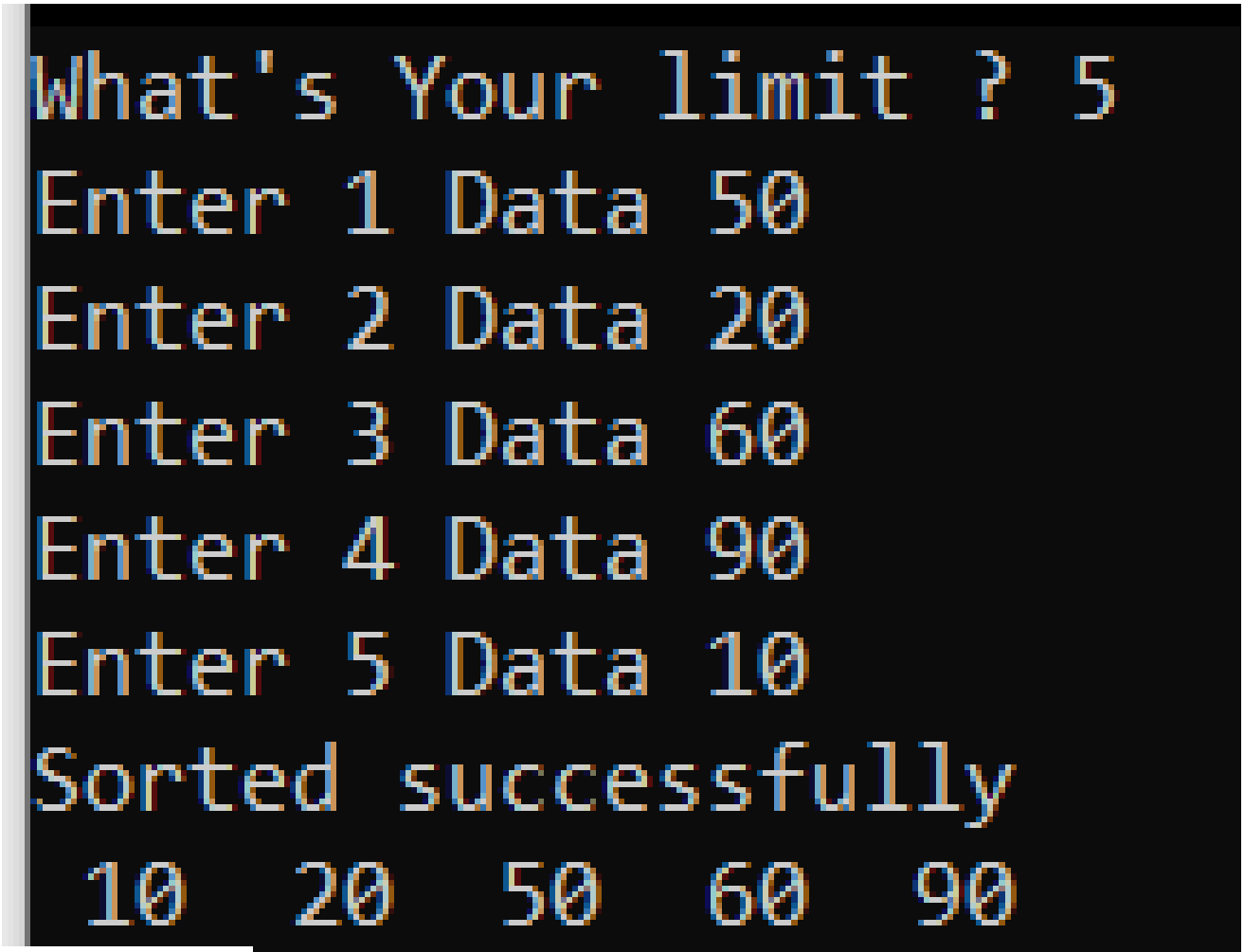

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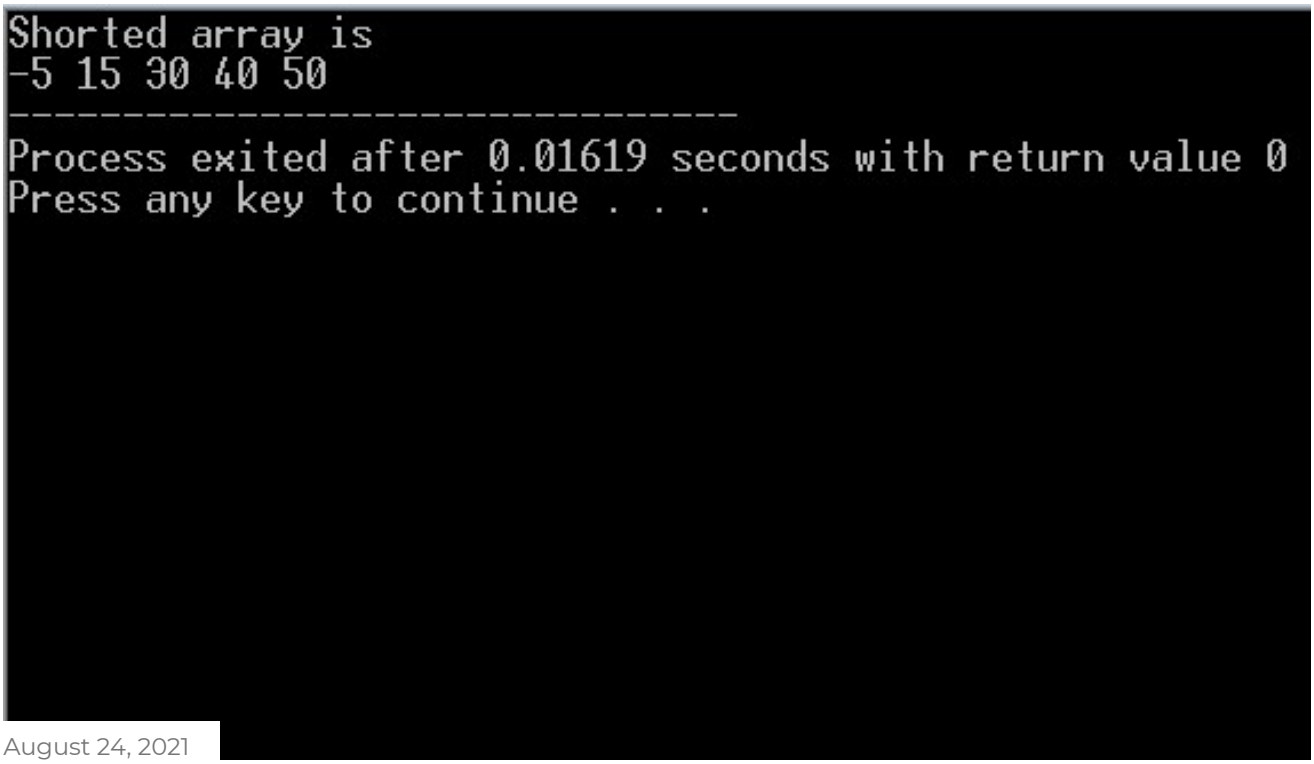

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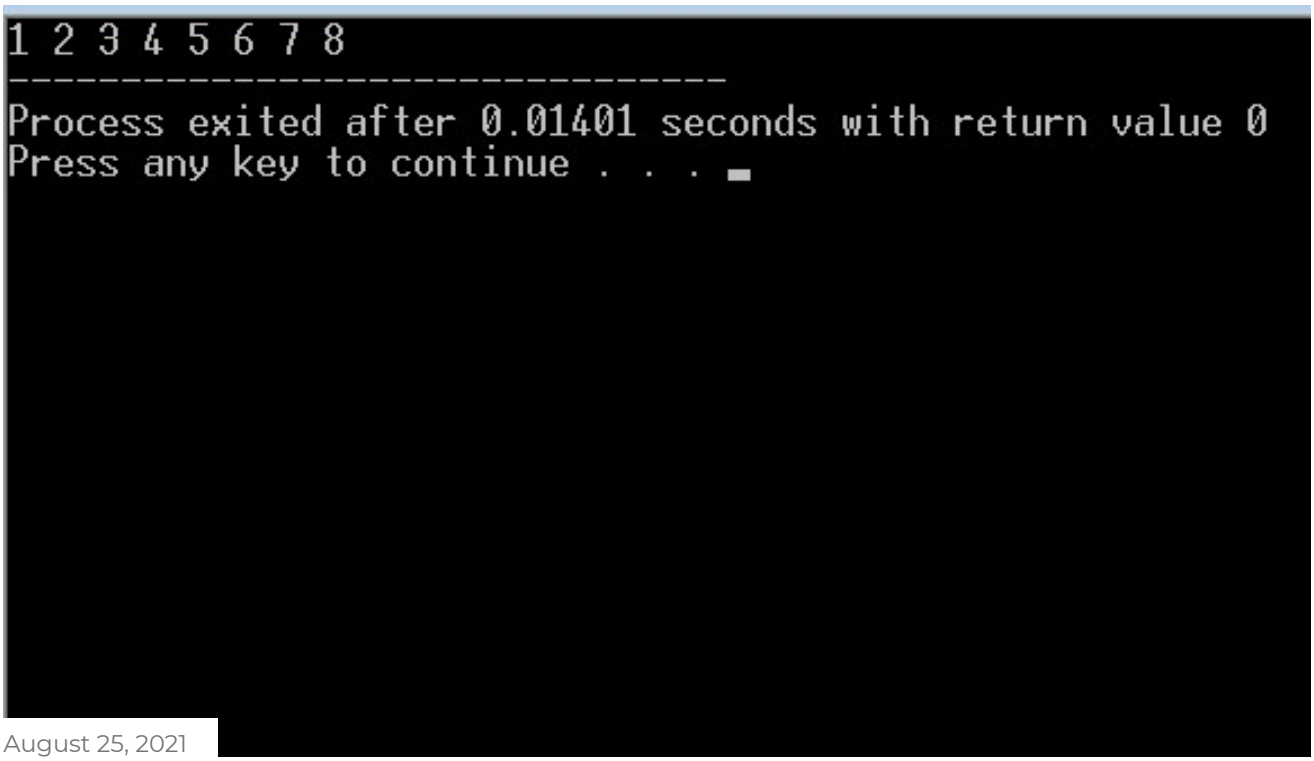

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