Nisarg Wath
642403014

Assignment 3

Reverse String

Header.h

```
typedef struct Stack{
    char * data;
    int size;
    int top;

}Stack;


void init(Stack *s, int size);
void push(Stack * s, char value);
char pop(Stack *s);
```

Logic.c

```
#include <stdio.h>
#include <stdlib.h>
#include "header.h"



void init(Stack *s, int size) {
    s->data = (char *)malloc(size * sizeof(char));  // Allocate
memory for 'size' characters
    s->top = -1;
    s->size = size;
}


void push(Stack *s, char value) {
    if (s->top == s->size - 1) {
        printf("Stack Overflow!!\n");
```

```
        return;
    }
    s->data[++(s->top)] = value;
}


char pop(Stack *s) {
    if (s->top == -1) {
        printf("Stack is Empty!\n");
        return '\0';
    }
    return s->data[s->top--];
}


char peek(Stack *s) {
    if (s->top == -1) {
        return '\0';
    }
    return s->data[s->top];
}
```

Main.c

```
#include <stdio.h>
#include <stdlib.h>
#include "header.h"
#include<string.h>

int main(){
    char str[] ="Data Structures";
    Stack s;
    init(&s,100);
    int n = strlen(str);
    for(int i = 0;i<n;i++){
        push(&s, str[i]);
    }
    for(int i = 0;i<n;i++){
        str[i] = pop(&s);
    }
      printf("%s", str);

}
```