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COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE: CSA0302

Experiment 12: Stack using Arrays

CODE:

```
#include <stdio.h>
#define SIZE 100

int stack[SIZE], top = -1;

void push() {
   int value;
   if(top == SIZE - 1)
      printf("Stack Overflow\n");
   else {
      printf("Enter value to push: ");
      scanf("%d", &value);
      top++;
      stack[top] = value;
      printf("Value pushed successfully\n");
   }
}

void pop() {
   if(top == -1)
      printf("Stack Underflow\n");
   else {
      printf("Popped element: %d\n", stack[top]);
      top--;
```

```
    }
}

void display() {
    int i;
    if(top == -1)
        printf("Stack is empty\n");
    else {
        printf("Stack elements:\n");
        for(i = top; i >= 0; i--)
            printf("%d\n", stack[i]);
    }
}

int main() {
    int choice;
    while(1) {
        printf("\n--- Stack Menu ---\n");
        printf("1. Push\n2. Pop\n3. Display\n4. Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);
        switch(choice) {
            case 1: push(); break;
            case 2: pop(); break;
            case 3: display(); break;
            case 4: return 0;
            default: printf("Invalid choice\n");
        }
    }
}
```

OUTPUT:

```
--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 1
Enter value to push: 20
Value pushed successfully

--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 3
Stack elements:
20

--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter your choice: 2
Popped element: 20

--- Stack Menu ---
1. Push
2. Pop
3. Display
4. Exit
Enter vour choice: 4
```