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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 your choice: 4
```