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COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE: CSA0302

Experiment 17: Implementation of Queue using Arrays

Code:

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

int queue[SIZE];
int front = -1, rear = -1;

void enqueue() {
   int value;
   if(rear == SIZE - 1)
      printf("Queue Overflow\n");
   else {
      printf("Enter value to enqueue: ");
      scanf("%d", &value);
      if(front == -1)
         front = 0;
      rear++;
      queue[rear] = value;
      printf("Value inserted successfully\n");
   }
}

void dequeue() {
   if(front == -1 || front > rear)
      printf("Queue Underflow\n");
```

```
    else {
        printf("Deleted element: %d\n", queue[front]);
        front++;
    }
}

void display() {
    int i;
    if(front == -1 || front > rear)
        printf("Queue is empty\n");
    else {
        printf("Queue elements:\n");
        for(i = front; i <= rear; i++)
            printf("%d ", queue[i]);
        printf("\n");
    }
}

int main() {
    int choice;
    while(1) {
        printf("\n--- Queue Menu ---\n");
        printf("1. Enqueue\n2. Dequeue\n3. Display\n4. Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);
        switch(choice) {
            case 1: enqueue(); break;
            case 2: dequeue(); break;
            case 3: display(); break;
            case 4: return 0;
            default: printf("Invalid choice\n");
```

```
    }
  }
}
```

Output:

```
--- Queue Menu ---
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 1
Enter value to enqueue: 10
Value inserted successfully

--- Queue Menu ---
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 3
Queue elements:
10

--- Queue Menu ---
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 2
Deleted element: 10
```