Week 3:

Linear Queue

#include<stdio.h>

#include<stdlib.h>

#define max 300

int a[max];

int front = -1, rear = -1;

int isFull();

int isEmpty();

void enque(int x);

void deque();

void display();

int isFull() {

if (rear == max - 1) {

return 1;

}

return 0;

}

int isEmpty() {

if (front == -1 && rear == -1) {

return 1;

}

return 0;

}

void enque(int x) {

if (isFull()) {

printf("Queue is full\n");

} else if (isEmpty()) {

front = 0;

rear = 0;

a[rear] = x;

} else {

rear++;

a[rear] = x;

}

}

void deque() {

if (isEmpty()) {

printf("Queue is empty\n");

} else {

printf("Dequeued: %d\n", a[front]);

front++;

if (front > rear) {

front = rear = -1;

}

}

}

void display() {

printf("Ruqaiyya Mahreen 1BM23EE044\n");

if (isEmpty()) {

printf("Queue is empty\n");

return;

}

printf("The queue elements are: ");

for (int i = front; i <= rear; i++) {

printf("%d ", a[i]);

}

printf("\n");

}

int main() {

int ch, n;

while (1) {

printf("Enter 1.Enqueue 2.Dequeue 3.Display 4.Exit\n");

scanf("%d", &ch);

switch (ch) {

case 1:

printf("Enter the element to enqueue: ");

scanf("%d", &n);

enque(n);

break;

case 2:

deque();

break;

case 3:

display();

break;

case 4:

exit(0);

default:

printf("Wrong choice entered!\n");

}

}

}

