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CIRCULAR QUEUES IMPLEMENTATION

AIM : Implement a Circular Queue and perform the Queue operations: Enqueue , Dequeue and Print using Menu Driver Program such as 1.Add, 2.Delete and 3. Print and 4. Exit.

PROGRAM :

```
#include <stdio.h>
// Creating array Globaly
int Queue[5];
int front = -1, rear = -1, data;
// FUNCTION FOR ENQUEUE
int enqueue()
{
if((rear + 1) % 5 == front){
printf("The Queue is Overflow.\n");
}else if(front == -1 && rear == -1){
front = 0;
rear = 0;
printf("Enter the data.\n");
scanf("%d", &data);
Queue[rear] = data;
}else{
printf("Enter the data.\n");
scanf("%d", &data);
rear = (rear + 1) % 5;
Queue[rear] = data;
}
return 0;
}
```

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```
// FUNCTION FOR DEQUEUE
int dequeue()
{
if(front == -1 && rear == -1 ){
printf("The Queue is Underflow.\n");
}else if(front == rear){
printf("The Queue is Underflow.\n");
front = rear = -1;
}else{
printf("The deleting element is %d.\n", Queue[front]);
front = (front + 1) % 5;
}
return 0;
}
void display()
{
if (front == -1)
{
// Checking the queue is empty or not.
printf("The Queue is empty so, can not print the element.\n");
}
else
{
// printing the elements in the Queue
int i = front;
while (1)
{
printf("%d\t", Queue[i]);
```

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```
if (i == rear)

break; // Stop when we reach the rear

i = (i + 1) % 5; // Move to the next index in circular manner

}

printf("\n");

}

}

// MAIN FUNCTION

int main()

{

int choice;

printf("Queue Implementation\n");

printf("Choices\n1.Enqueue\t2.Dequeue\t3.Print\t4.Exit\n");

do

{

printf("Enter a valid choice\n");

scanf("%d", &choice);

switch (choice)

{

case 1:

enqueue();

break;

case 2:

dequeue();

break;

case 3:

display();

break;
```

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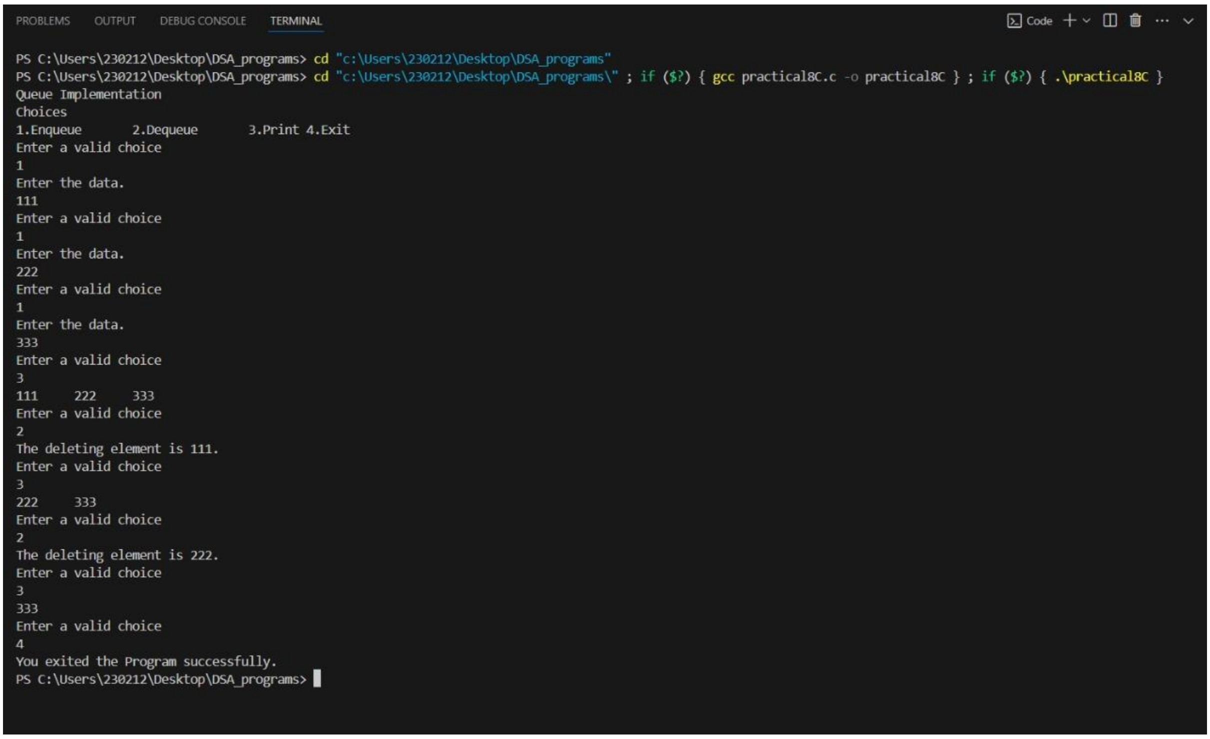
```
case 4:

printf("You exited the Program successfully.");

break;

default:

printf("Please enter a valid choice as mention!\n");

break;

}

} while (choice != 4);

return 0;

}
```

OUTPUT



```
PS C:\Users\230212\Desktop\DSA_programs> cd "c:\Users\230212\Desktop\DSA_programs"
PS C:\Users\230212\Desktop\DSA_programs> cd "c:\Users\230212\Desktop\DSA_programs\" ; if ($?) { gcc practical8C.c -o practical8C } ; if ($?) { .\practical8C }
Queue Implementation
Choices
1.Enqueue       2.Dequeue       3.Print 4.Exit
Enter a valid choice
1
Enter the data.
111
Enter a valid choice
1
Enter the data.
222
Enter a valid choice
1
Enter the data.
333
Enter a valid choice
3
111     222     333
Enter a valid choice
2
The deleting element is 111.
Enter a valid choice
3
222     333
Enter a valid choice
2
The deleting element is 222.
Enter a valid choice
3
333
Enter a valid choice
4
You exited the Program successfully.
PS C:\Users\230212\Desktop\DSA_programs> █
```

GITHUB LINK : https://github.com/AmolNagargoje04/Data-Structure-practical