Experiment 6

Objective: Implementation of Queue using Linked list

Code:

```c
#include<stdio.h>
#include<stdlib.h>
struct node
{
    int data;
    struct node*next;
};
struct node*front;
struct node*rear;
void push();
void pop();
void display();
void main()
{
    int x;
    while(x!=4)
    {
        printf("\n************MENU**************\n");
        printf("\n1.Insert");
        printf("\n2.Delete");
        printf("\n3.Display");
        printf("\n4.Exit");
        printf("\nChoose one from above options:");
        scanf("%d",&x);
```

```c
        switch(x)
        {
            case 1:
            push();
            break;
            case 2:
            pop();
            break;
            case 3:
            display();
            break;
            case 4:
            exit(0);
            break;
            default:
            printf("\nEnter your choice:");
        }
    }
}
void push()
{
    struct node*ptr;
    int a;
    ptr=(struct node*)malloc(sizeof(struct node));
    if(ptr==NULL)
    {
        printf("\nOVERFLOW");
```

```c
      return;
   }
   else
   {
      printf("\nEnter your value");
      scanf("%d",&a);
      ptr->data=a;
      if(front==NULL)
      {
         front=ptr;
         rear=ptr;
         front->next=NULL;
         rear->next=NULL;
      }
      else
      {
         rear->next=ptr;
         rear=ptr;
         rear->next=NULL;
      }
   }
}
void pop()
{
   struct node*ptr;
   if(front==NULL)
   {
```

```c
        printf("\nUNDERFLOW");
        return;
    }
    else
    {
        ptr=front;
        front=front->next;
        free(ptr);
    }
}
void display()
{
    struct node*ptr;
    ptr=front;
    if(front==NULL)
    {
        printf("\nEmpty queue");
    }
    else
    {
        printf("\nDisplaying values:");
        while(ptr!=NULL)
        {
            printf("%d\n",ptr->data);
            ptr=ptr->next;
        }
    }
```

}

Output:

```
*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
Choose one from above options:1

Enter your value1

*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
Choose one from above options:1

Enter your value2

*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
Choose one from above options:1

Enter your value3

*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
```

```
2.Delete
3.Display
4.Exit
Choose one from above options:1

Enter your value3

*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
Choose one from above options:2

*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
Choose one from above options:3

Displaying values:2
3

*************MENU**************

1.Insert
2.Delete
3.Display
4.Exit
Choose one from above options:4

...Program finished with exit code 0
Press ENTER to exit console.
```

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