Program –

*#include* <iostream>

*using* *namespace* std;

*#define* SIZE 5

*class* dequeue

{

*int* a[10], front, rear, count;

*public:*

    dequeue();

*void* add\_at\_beg(*int*);

*void* add\_at\_end(*int*);

*void* delete\_fr\_front();

*void* delete\_fr\_rear();

*void* display();

};

dequeue::dequeue()

{

    front *=* *-*1;

    rear *=* *-*1;

    count *=* 0;

}

*void* dequeue::add\_at\_beg(*int* *item*)

{

*int* i;

*if* (front *==* *-*1)

    {

        front*++*;

        rear*++*;

        a[rear] *=* *item*;

        count*++*;

    }

*else* *if* (rear *>=* SIZE *-* 1)

    {

        cout *<<* "\nInsertion is not possible,overflow!";

    }

*else*

    {

        cout *<<* "\nInsertion is not possible,overflow!";

*for* (i *=* count; i *>=* 0; i*--*)

        {

            a[i] *=* a[i *-* 1];

        }

        a[i] *=* *item*;

        count*++*;

        rear*++*;

    }

}

*void* dequeue::add\_at\_end(*int* *item*)

{

*if* (front *==* *-*1)

    {

        front*++*;

        rear*++*;

        a[rear] *=* *item*;

        count*++*;

    }

*else* *if* (rear *>=* SIZE *-* 1)

    {

        cout *<<* "\nInsertion is not possible,overflow!";

*return*;

    }

*else*

    {

        a[*++*rear] *=* *item*;

    }

}

*void* dequeue::display()

{

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

    {

        cout *<<* a[i] *<<* "\n";

    }

}

*void* dequeue::delete\_fr\_front()

{

*if* (front *==* *-*1)

    {

        cout *<<* "Deletion is not possible: Dequeue is empty";

*return*;

    }

*else*

    {

*if* (front *==* rear)

        {

            front *=* rear *=* *-*1;

*return*;

        }

        cout *<<* "The deleted element is " *<<* a[front];

        front *=* front *+* 1;

    }

}

*void* dequeue::delete\_fr\_rear()

{

*if* (front *==* *-*1)

    {

        cout *<<* "Deletion is not possible: Dequeue is empty";

*return*;

    }

*else*

    {

*if* (front *==* rear)

        {

            front *=* rear *=* *-*1;

        }

        cout *<<* "The deleted element is " *<<* a[rear];

        rear *=* rear *-* 1;

    }

}

*int* main()

{

*int* c, item;

    dequeue d1;

*do*

    {

        cout *<<* "\n\n\*\*\*\*DEQUEUE OPERATION\*\*\*\*\n";

        cout *<<* "\n1-Insert at beginning";

        cout *<<* "\n2-Insert at end";

        cout *<<* "\n3\_Display";

        cout *<<* "\n4\_Deletion from front";

        cout *<<* "\n5-Deletion from rear";

        cout *<<* "\n6\_Exit";

        cout *<<* "\nEnter your choice:";

        cin *>>* c;

*switch* (c)

        {

*case* 1:

            cout *<<* "Enter the element to be inserted:";

            cin *>>* item;

            d1.add\_at\_beg(item);

*break*;

*case* 2:

            cout *<<* "Enter the element to be inserted:";

            cin *>>* item;

            d1.add\_at\_end(item);

*break*;

*case* 3:

            d1.display();

*break*;

*case* 4:

            d1.delete\_fr\_front();

*break*;

*case* 5:

            d1.delete\_fr\_rear();

*break*;

*case* 6:

            exit(1);

*break*;

*default*:

            cout *<<* "Invalid choice";

*break*;

        }

    } *while* (c *!=* 7);

*return* 0;

}

Output-



