

File Edit Selection View Go Run ... Daa-code

EXPLORER

- DAA-CODE
  - .vscode
  - daacode-java
  - a.exe
  - BF\_string\_matching.cpp
  - BinarySearch.cpp
  - BinarySearchRecursive.cpp
  - BubbleSort.cpp
  - exhaustive\_search.cpp
  - Graph.cpp
  - HalfLinearSearch.cpp
  - InsertionSort.cpp
  - LinearSearch.cpp
  - LinearSearch.exe
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  - QueueUsingArray.cpp
  - QuickSort.cpp
  - SelectionSort.cpp
  - StackUsingArray.cpp
  - StackUsingLinkedList.cpp
  - StrassenseMatrixMultiplication....
  - travelling\_salesman\_problem.cpp
  - Tree.cpp
- OUTLINE
- TIMELINE

StackUsingLinkedList.cpp

```
1 //Name:Maniyar Danish, Reg.no:2020BIT028
2 //Stack using linked list
3 #include <bits/stdc++.h>
4 using namespace std;
5 class Node {
6 public:
7     int data;
8     Node* link;
9     Node(int n){
10         this->data = n;
11         this->link = NULL;
12     }
13 };
14 class Stack {
15     Node* top;
16 public:
17     Stack() { top = NULL; }
18     void push(int data){
19         Node* temp = new Node(data);
20         if (!temp) {
21             cout << "\nStack Overflow";
22             exit(1);
23         }
24         temp->data = data;
25         temp->link = top;
26         top = temp;
27     }
28     bool isEmpty(){
29         return top == NULL;
30     }
31     int peek(){
32         if (!isEmpty())
```

Ln 10, Col 24 Spaces: 4 UTF-8 CRLF C++ Win32

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StackUsingLinkedList.cpp

```
31 int peek(){
32     if (!isEmpty())
33         return top->data;
34     else
35         exit(1);
36 }
37 void pop(){
38     Node* temp;
39     if (top == NULL) {
40         cout << "\nStack Underflow" << endl;
41         exit(1);
42     }
43     else {
44         temp = top;
45         top = top->link;
46         free(temp);
47     }
48 }
49 void display(){
50     Node* temp;
51     if (top == NULL) {
52         cout << "\nStack Underflow";
53         exit(1);
54     }
55     else {
56         temp = top;
57         while (temp != NULL) {
58             cout << temp->data;
59             temp = temp->link;
60             if (temp != NULL)
61                 cout << " -> ";
62         }
63     }
```

Ln 10, Col 24 Spaces: 4 UTF-8 CRLF C++ Win32

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- OUTLINE
- TIMELINE

StackUsingLinkedList.cpp

```
53         exit(1);
54     }
55     else {
56         temp = top;
57         while (temp != NULL) {
58             cout << temp->data;
59             temp = temp->link;
60             if (temp != NULL)
61                 cout << " -> ";
62         }
63     }
64 }
65 };
66 int main(){
67     Stack s;
68     s.push(11);
69     s.push(22);
70     s.push(33);
71     s.push(44);
72     s.display();
73     cout << "\nTop element is " << s.peek() << endl;
74     s.pop();
75     s.pop();
76     s.display();
77     cout << "\nTop element is " << s.peek() << endl;
78     return 0;
79 }
80
```

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EXPLORER

DAA-CODE

.vscode

daacode-java

a.exe

BF\_string\_matching.cpp

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StackUsingLinkedList.cpp

StrassenseMatrixMultiplication....

travelling\_salesman\_problem.cpp

Tree.cpp

OUTLINE

TIMELINE

StackUsingLinkedList.cpp

StackUsingLinkedList.cpp > Node > Node(int)

```
71     s.push(44);
72     s.display();
73     cout << "\nTop element is " << s.peek() << endl;
74     s.pop();
75     s.pop();
76     s.display();
77     cout << "\nTop element is " << s.peek() << endl;
78     return 0;
79 }
80
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

\* History restored

PS D:\DAA\Daa-code> g++ StackUsingLinkedList.cpp

PS D:\DAA\Daa-code> .\a.exe

44 -> 33 -> 22 -> 11

Top element is 44

22 -> 11

Top element is 22

PS D:\DAA\Daa-code>

powershell

powershell

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- > OUTLINE
- > TIMELINE

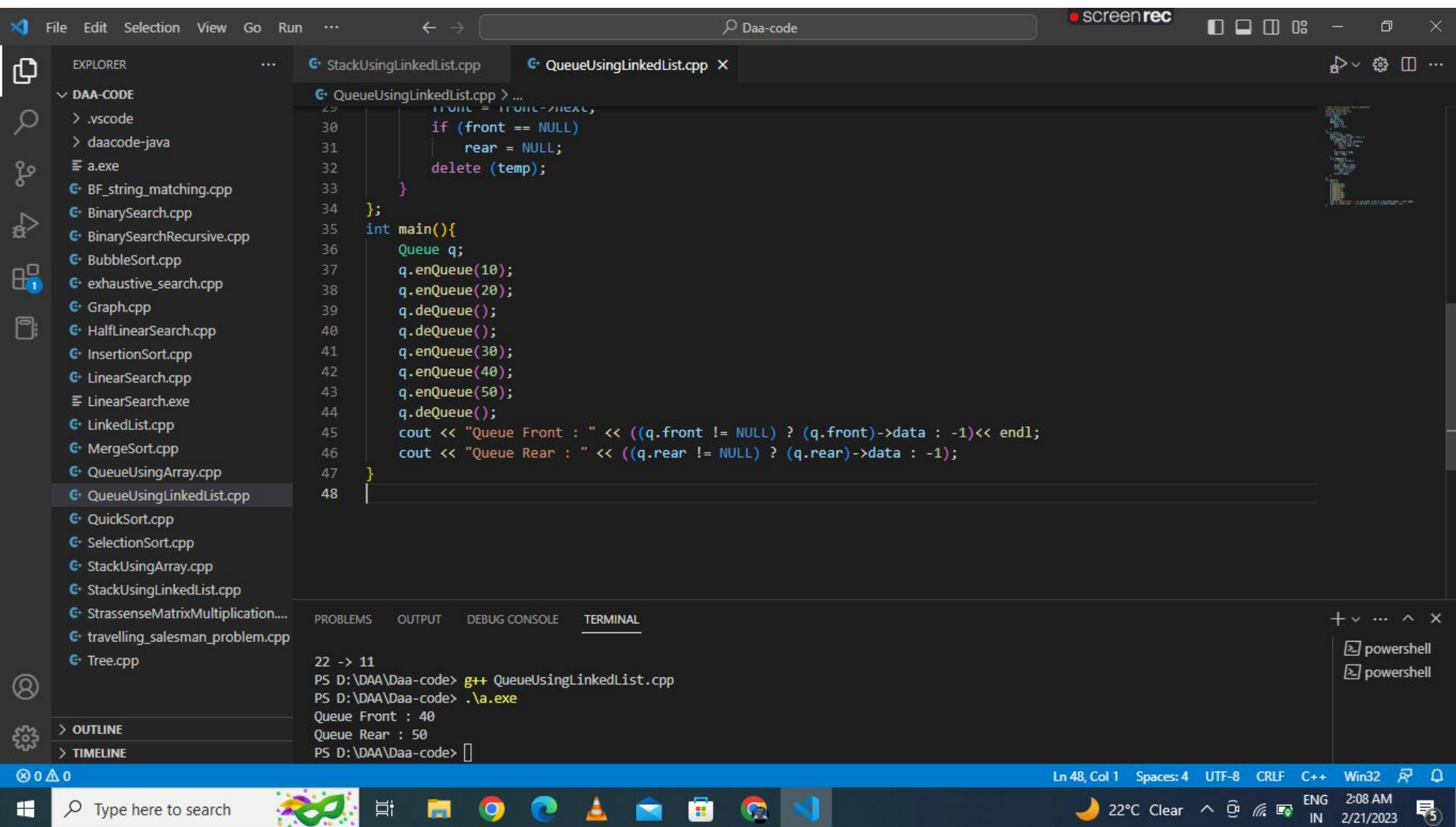
QueueUsingLinkedList.cpp > ...

```
1 //Name: Maniyar Danish, Reg.no:2020BIT028
2 //QueueUsingLinkedList
3 #include <bits/stdc++.h>
4 using namespace std;
5 struct QNode {
6     int data;
7     QNode* next;
8     QNode(int d){
9         data = d;
10        next = NULL;
11    }
12 };
13 struct Queue {
14     QNode *front, *rear;
15     Queue() { front = rear = NULL; }
16     void enqueue(int x){
17         QNode* temp = new QNode(x);
18         if (rear == NULL) {
19             front = rear = temp;
20             return;
21         }
22         rear->next = temp;
23         rear = temp;
24     }
25     void dequeue(){
26         if (front == NULL)
27             return;
28         QNode* temp = front;
29         front = front->next;
30         if (front == NULL)
31             rear = NULL;
32         delete (temp);
```

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EXPLORER

DAA-CODE

.vscode

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BF\_string\_matching.cpp

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LinearSearch.exe

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OUTLINE

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StackUsingLinkedList.cpp

QueueUsingLinkedList.cpp

DoublyLinkedList.cpp

DoublyLinkedList.cpp > ...

```
1 // Name: Maniyar Danish, Reg.no:2020BIT028
2 //DoublyLinkedList
3 #include <bits/stdc++.h>
4 using namespace std;
5 class Node {
6 public:
7     int data;
8     Node* next;
9     Node* prev;
10 };
11 void push(Node** head_ref, int new_data){
12     Node* new_node = new Node();
13     new_node->data = new_data;
14     new_node->next = (*head_ref);
15     new_node->prev = NULL;
16     if ((*head_ref) != NULL)
17         (*head_ref)->prev = new_node;
18     (*head_ref) = new_node;
19 }
20 void insertAfter(Node* prev_node, int new_data){
21     if (prev_node == NULL) {
22         cout << "the given previous node cannot be NULL";
23         return;
24     }
25     Node* new_node = new Node();
26     new_node->data = new_data;
27     new_node->next = prev_node->next;
28     prev_node->next = new_node;
29     new_node->prev = prev_node;
30     if (new_node->next != NULL)
31         new_node->next->prev = new_node;
32 }
```

Ln 2, Col 19

Spaces: 4

UTF-8

CRLF

C++

Win32

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EXPLORER

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OUTLINE

TIMELINE

DoublyLinkedList.cpp > ...

```
29     new_node->prev = prev_node;
30     if (new_node->next != NULL)
31         new_node->next->prev = new_node;
32 }
33 void append(Node** head_ref, int new_data){
34     Node* new_node = new Node();
35     Node* last = *head_ref;
36     new_node->data = new_data;
37     new_node->next = NULL;
38     if (*head_ref == NULL) {
39         new_node->prev = NULL;
40         *head_ref = new_node;
41         return;
42     }
43     while (last->next != NULL)
44         last = last->next;
45     last->next = new_node;
46     new_node->prev = last;
47     return;
48 }
49 void printList(Node* node){
50     Node* last;
51     cout << "\nTraversal in forward direction \n";
52     while (node != NULL) {
53         cout << node->data << " ";
54         last = node;
55         node = node->next;
56     }
57     cout << "\nTraversal in reverse direction \n";
58     while (last != NULL) {
59         cout << last->data << " ";
60         last = last->prev;
```

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Daa-code

screenrec

EXPLORER

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OUTLINE

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DoublyLinkedList.cpp > ...

```
56     }
57     cout << "\nTraversal in reverse direction \n";
58     while (last != NULL) {
59         cout << last->data << " ";
60         last = last->prev;
61     }
62 }
63 int main(){
64     Node* head = NULL;
65     append(&head, 6);
66     push(&head, 7);
67     push(&head, 1);
68     append(&head, 4);
69     insertAfter(head->next, 8);
70     cout << "Created DLL is: ";
71     printList(head);
72     return 0;
73 }
74
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS D:\DAA\Daa-code> g++ DoublyLinkedList.cpp
PS D:\DAA\Daa-code> .\a.exe
Created DLL is:
Traversal in forward direction
1 7 8 6 4
Traversal in reverse direction
4 6 8 7 1
PS D:\DAA\Daa-code>
```

+ ... ^ x

powershell

powershell

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StackUsingLinkedList.cpp QueueUsingLinkedList.cpp DoublyLinkedList.cpp enqueueanddequeue.cpp

enqueueanddequeue.cpp > ...

```
1 // Name:Maniyar Danish, Reg.no:2020BIT
2 #include <bits/stdc++.h>
3 using namespace std;
4 class Queue {
5 public:
6     int front, rear, size;
7     unsigned capacity;
8     int* array;
9 };
10 Queue* createQueue(unsigned capacity){
11     Queue* queue = new Queue();
12     queue->capacity = capacity;
13     queue->front = queue->size = 0;
14     queue->rear = capacity - 1;
15     queue->array = new int[queue->capacity];
16     return queue;
17 }
18 int isFull(Queue* queue){
19     return (queue->size == queue->capacity);
20 }
21 int isEmpty(Queue* queue){
22     return (queue->size == 0);
23 }
24 void enqueue(Queue* queue, int item){
25     if (isFull(queue))
26         return;
27     queue->rear = (queue->rear + 1)
28                 % queue->capacity;
29     queue->array[queue->rear] = item;
30     queue->size = queue->size + 1;
31     cout << item << " enqueued to queue\n";
32 }
```

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StackUsingLinkedList.cpp QueueUsingLinkedList.cpp DoublyLinkedList.cpp enqueueanddequeue.cpp x

enqueueanddequeue.cpp > ...

```
31     cout << item << " enqueued to queue\n";
32 }
33 int dequeue(Queue* queue){
34     if (isEmpty(queue))
35         return INT_MIN;
36     int item = queue->array[queue->front];
37     queue->front = (queue->front + 1)
38                 % queue->capacity;
39     queue->size = queue->size - 1;
40     return item;
41 }
42 int front(Queue* queue){
43     if (isEmpty(queue))
44         return INT_MIN;
45     return queue->array[queue->front];
46 }
47 int rear(Queue* queue){
48     if (isEmpty(queue))
49         return INT_MIN;
50     return queue->array[queue->rear];
51 }
52 int main(){
53     Queue* queue = createQueue(1000);
54     enqueue(queue, 10);
55     enqueue(queue, 20);
56     enqueue(queue, 30);
57     enqueue(queue, 40);
58     cout << dequeue(queue)
59         << " dequeued from queue\n";
60     cout << "Front item is "
61         << front(queue) << endl;
62     cout << "Rear item is "
```

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