Name: Zeeshan Ali

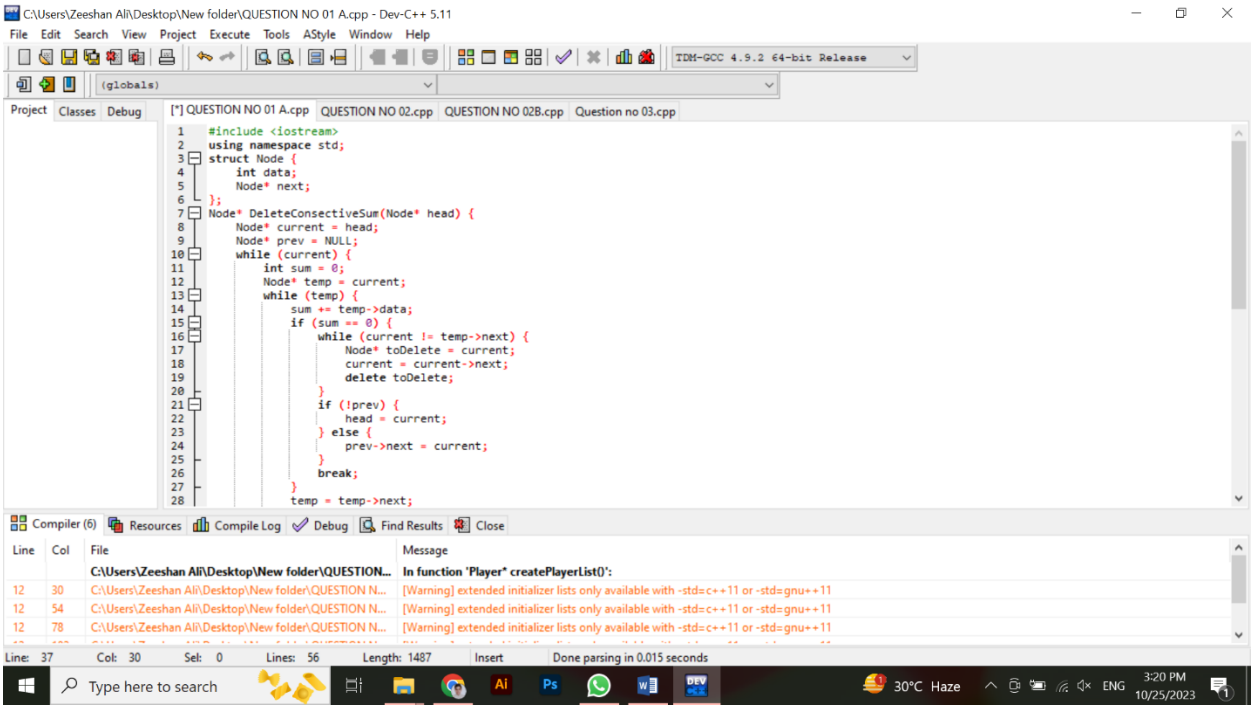
Roll No: SU92-BSITM-F22-019

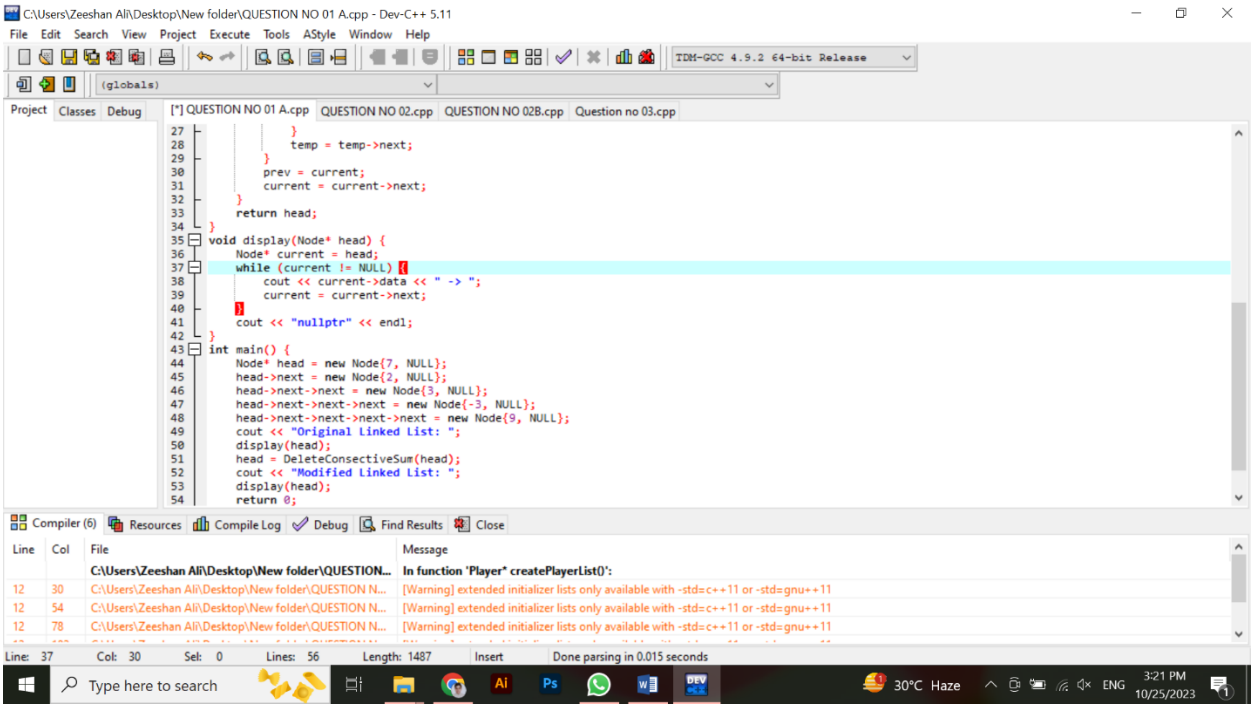
DSA(Lab) Assignment # 02

Question No 02:

(a)

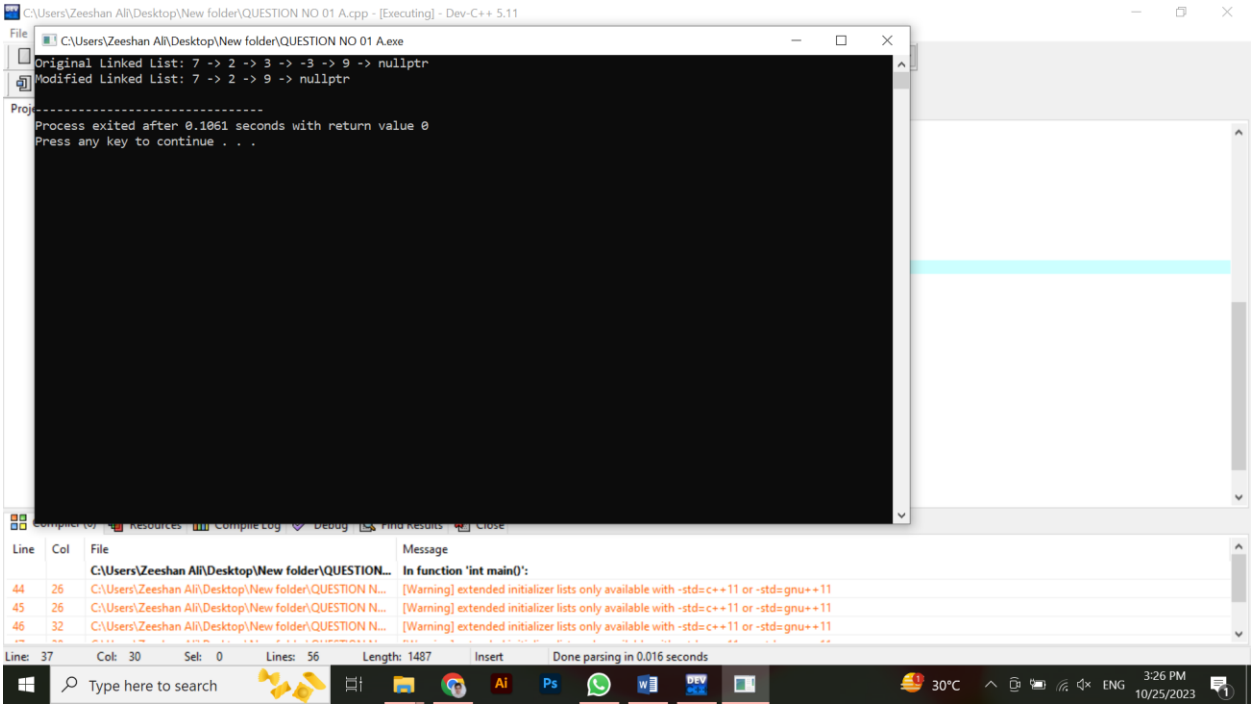
Code:





```
            }
            temp = temp->next;
        }
        prev = current;
        current = current->next;
    }
    return head;
}
void display(Node* head) {
    Node* current = head;
    while (current != NULL) {
        cout << current->data << " -> ";
        current = current->next;
    }
    cout << "nullptr" << endl;
}
int main() {
    Node* head = new Node{7, NULL};
    head->next = new Node{2, NULL};
    head->next->next = new Node{3, NULL};
    head->next->next->next = new Node{-3, NULL};
    head->next->next->next->next = new Node{9, NULL};
    cout << "Original Linked List: ";
    display(head);
    head = DeleteConsectiveSum(head);
    cout << "Modified Linked List: ";
    display(head);
    return 0;
```

Output:



```
Original Linked List: 7 -> 2 -> 3 -> -3 -> 9 -> nullptr
Modified Linked List: 7 -> 2 -> 9 -> nullptr

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Process exited after 0.1061 seconds with return value 0
Press any key to continue . . .
```
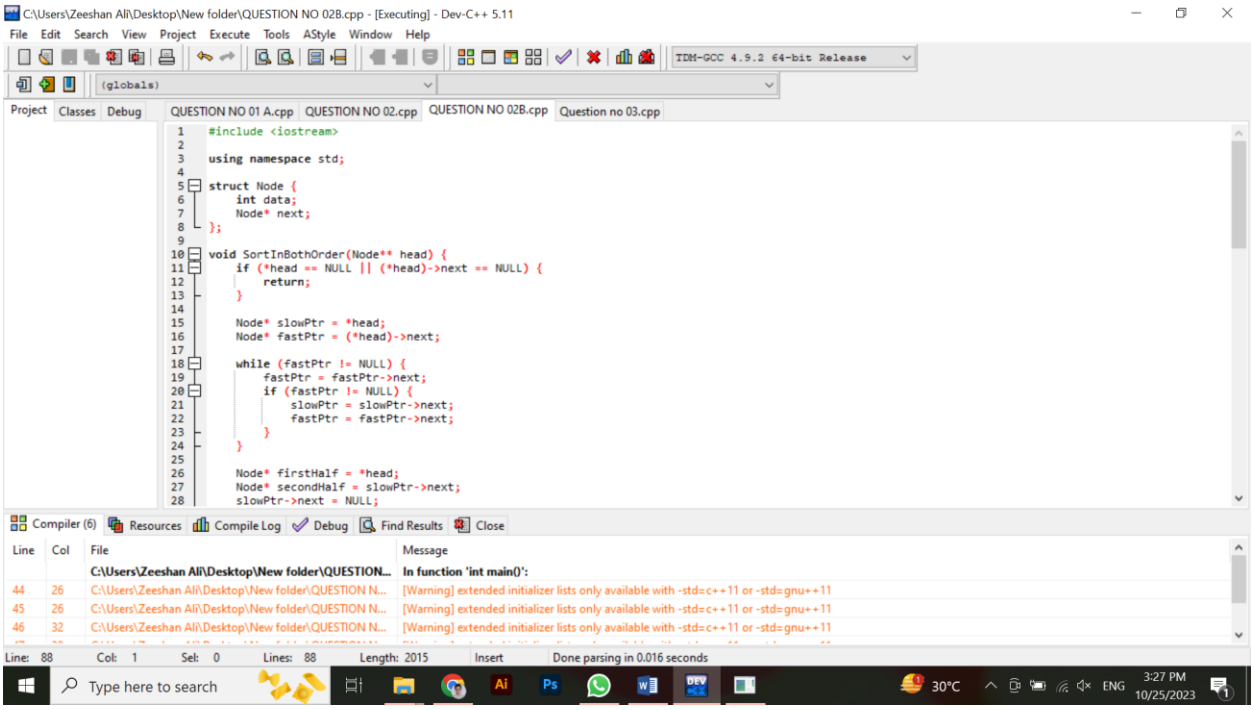
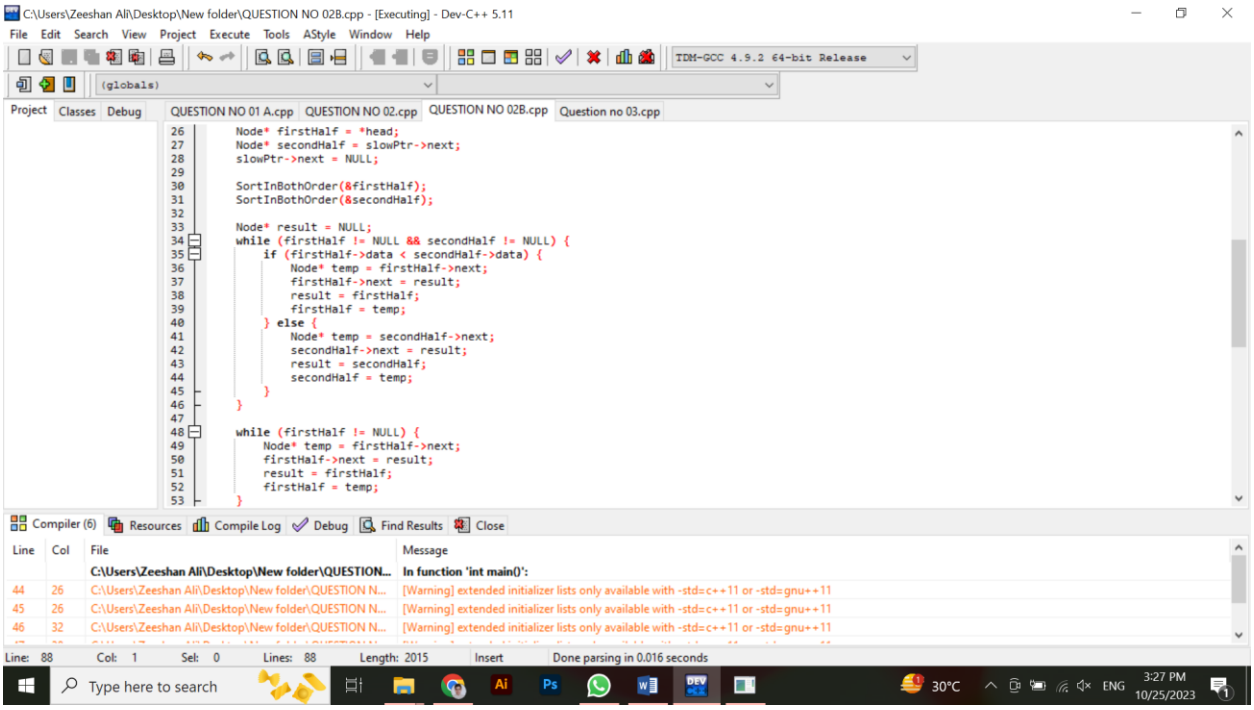

(b)

Code:


C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION NO 02B.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
QUESTION NO 01 A.cpp
QUESTION NO 02.cpp
QUESTION NO 02B.cpp
Question no 03.cpp
#include <iostream>
using namespace std;
struct Node {
int data;
Node* next;
};
void SortInBothOrder(Node** head) {
if (*head == NULL || (*head)->next == NULL) {
return;
}
Node* slowPtr = *head;
Node* fastPtr = (*head)->next;
while (fastPtr != NULL) {
fastPtr = fastPtr->next;
if (fastPtr != NULL) {
slowPtr = slowPtr->next;
fastPtr = fastPtr->next;
}
}
Node* firstHalf = *head;
Node* secondHalf = slowPtr->next;
slowPtr->next = NULL;
Compiler (6) Resources Compile Log Debug Find Results Close
Line Col File Message
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION... In function 'int main()':
44 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
45 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
46 32 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
Line: 88 Col: 1 Sel: 0 Lines: 88 Length: 2015 Insert Done parsing in 0.016 seconds
Type here to search
30°C ENG 3:27 PM 10/25/2023


C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION NO 02B.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
QUESTION NO 01 A.cpp
QUESTION NO 02.cpp
QUESTION NO 02B.cpp
Question no 03.cpp
Node* firstHalf = *head;
Node* secondHalf = slowPtr->next;
slowPtr->next = NULL;
SortInBothOrder(&firstHalf);
SortInBothOrder(&secondHalf);
Node* result = NULL;
while (firstHalf != NULL && secondHalf != NULL) {
if (firstHalf->data < secondHalf->data) {
Node* temp = firstHalf->next;
firstHalf->next = result;
result = firstHalf;
firstHalf = temp;
} else {
Node* temp = secondHalf->next;
secondHalf->next = result;
result = secondHalf;
secondHalf = temp;
}
}
while (firstHalf != NULL) {
Node* temp = firstHalf->next;
firstHalf->next = result;
result = firstHalf;
firstHalf = temp;
}
Compiler (6) Resources Compile Log Debug Find Results Close
Line Col File Message
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION... In function 'int main()':
44 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
45 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
46 32 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
Line: 88 Col: 1 Sel: 0 Lines: 88 Length: 2015 Insert Done parsing in 0.016 seconds
Type here to search
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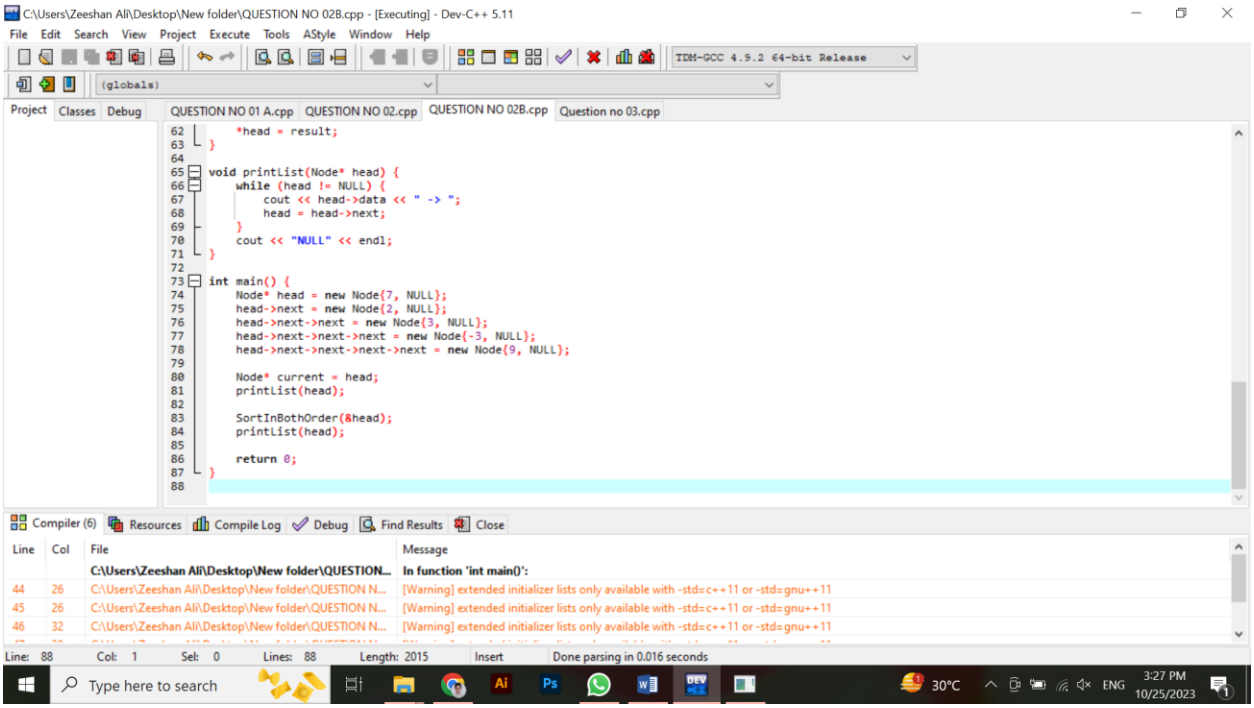
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION NO 02B.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
QUESTION NO 01 A.cpp
QUESTION NO 02.cpp
QUESTION NO 02B.cpp
Question no 03.cpp
*head = result;
}
void printList(Node* head) {
while (head != NULL) {
cout << head->data << " -> ";
head = head->next;
}
cout << "NULL" << endl;
}
int main() {
Node* head = new Node{7, NULL};
head->next = new Node{2, NULL};
head->next->next = new Node{3, NULL};
head->next->next->next = new Node{-3, NULL};
head->next->next->next->next = new Node{9, NULL};
Node* current = head;
printList(head);
SortInBothOrder(&head);
printList(head);
return 0;
}
Compiler (6)
Resources
Compile Log
Debug
Find Results
Close
Line
Col
File
Message
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION...
In function 'int main()':
44 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
45 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
46 32 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
Line: 88 Col: 1 Sel: 0 Lines: 88 Length: 2015 Insert Done parsing in 0.016 seconds
Type here to search
30°C
ENG
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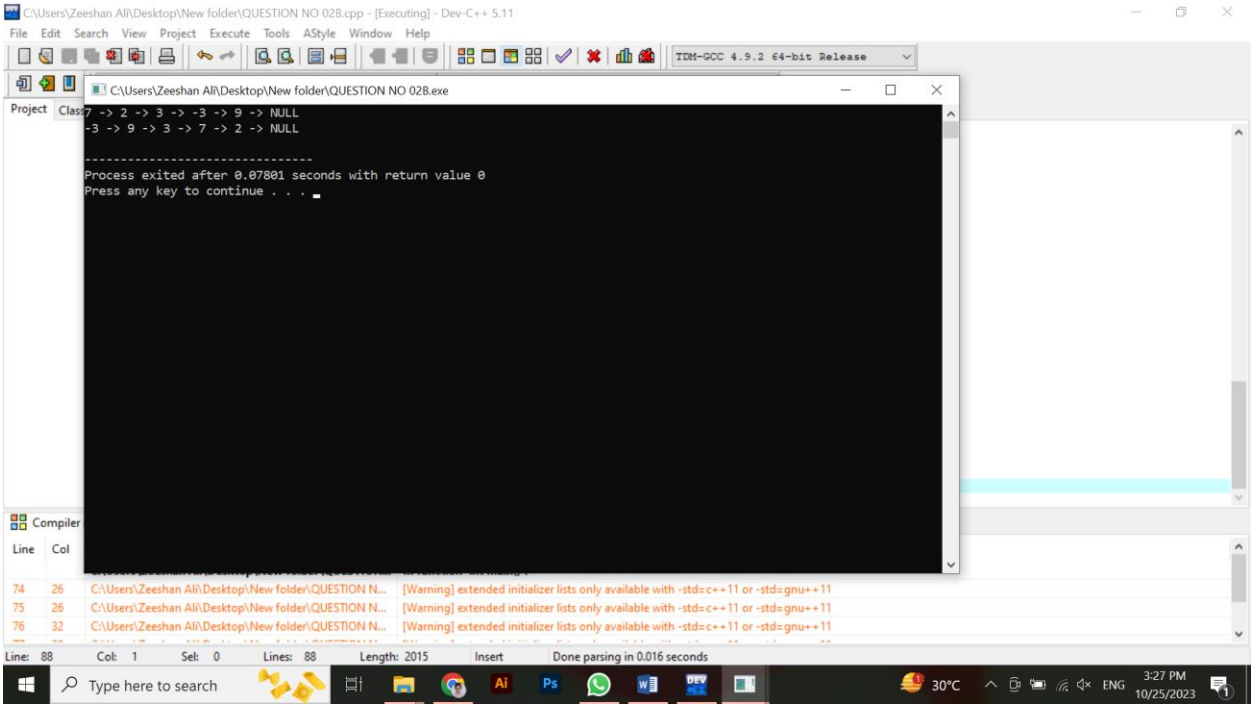
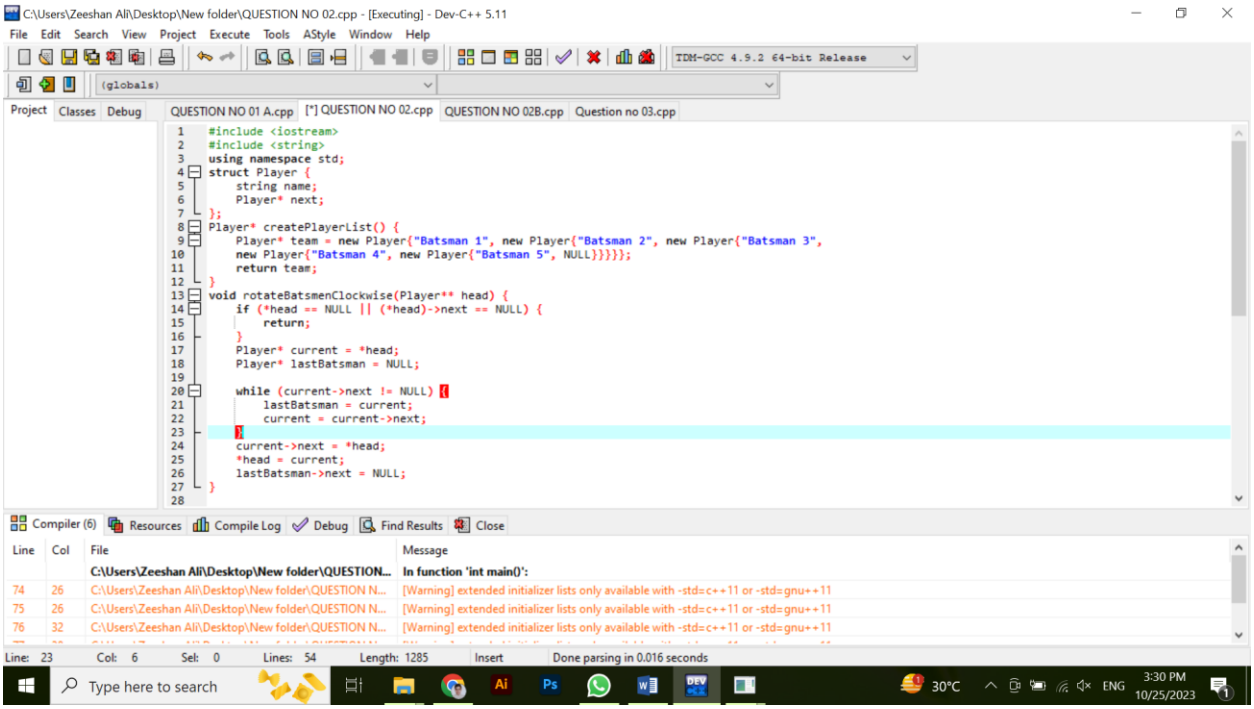
10/25/2023

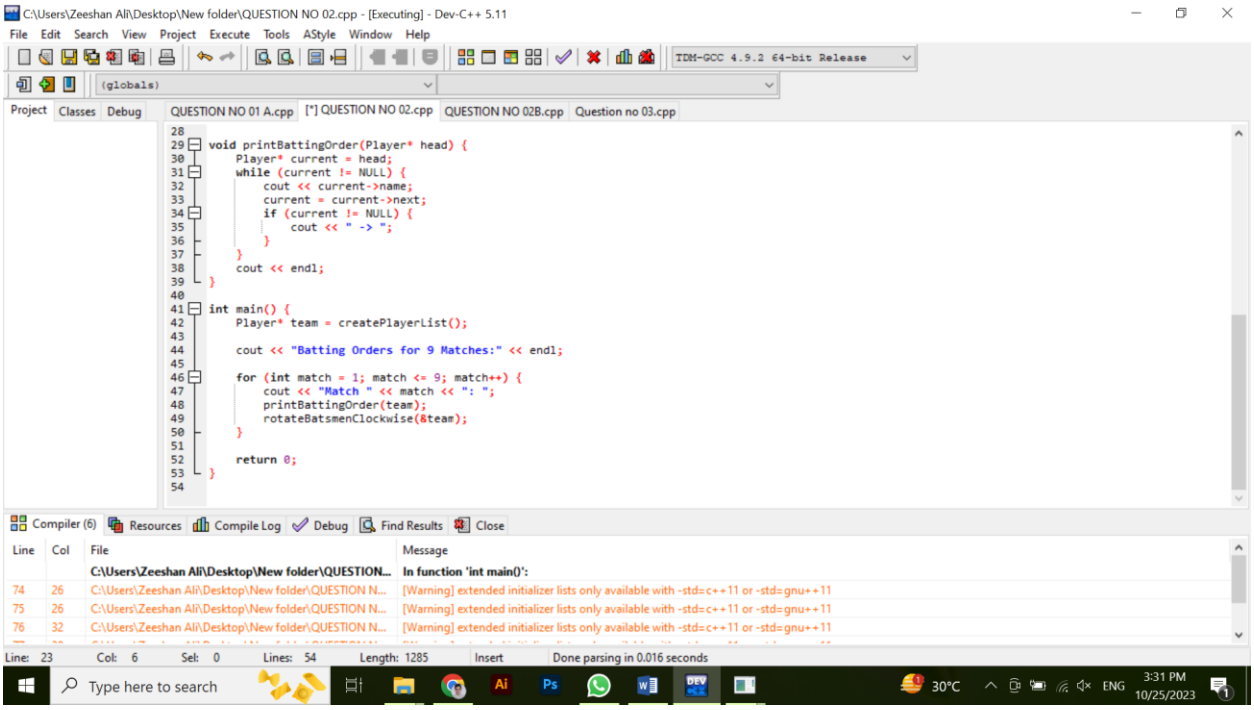
Output:


C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION NO 02B.cpp - [Executing] - Dev-C++ 5.11
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION NO 02B.exe
7 -> 2 -> 3 -> -3 -> 9 -> NULL
-3 -> 9 -> 3 -> 7 -> 2 -> NULL

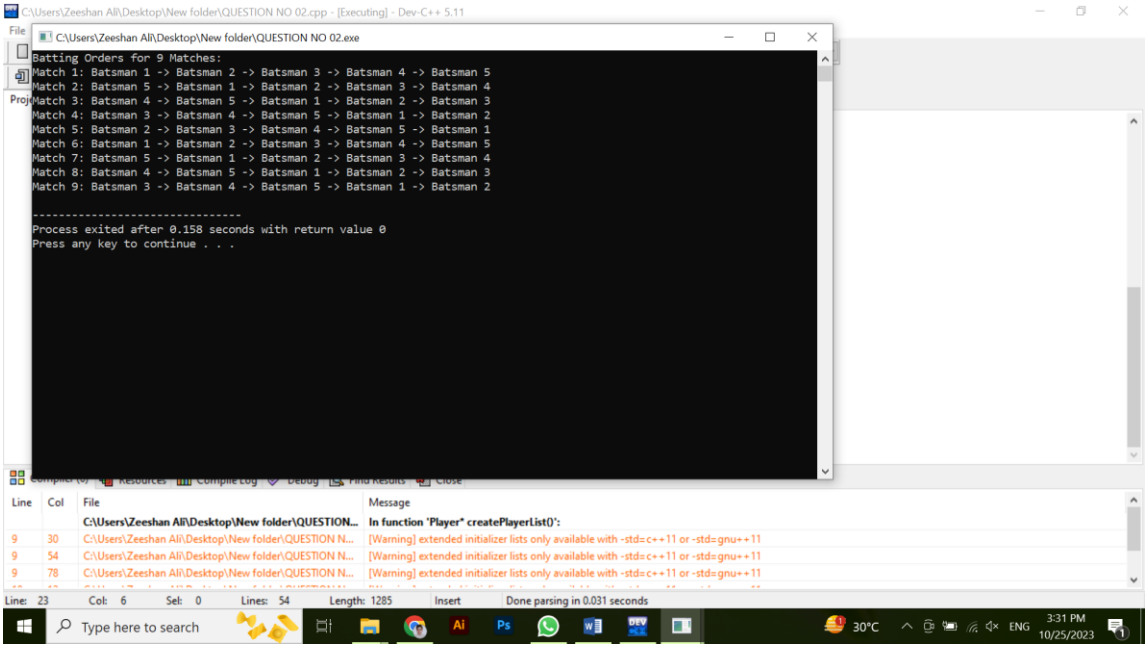
Process exited after 0.07801 seconds with return value 0
Press any key to continue . . .
Compiler
Line
Col
74 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
75 26 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
76 32 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
Line: 88 Col: 1 Sel: 0 Lines: 88 Length: 2015 Insert Done parsing in 0.016 seconds
Type here to search
30°C
ENG
3:27 PM
10/25/2023

Question no 03:



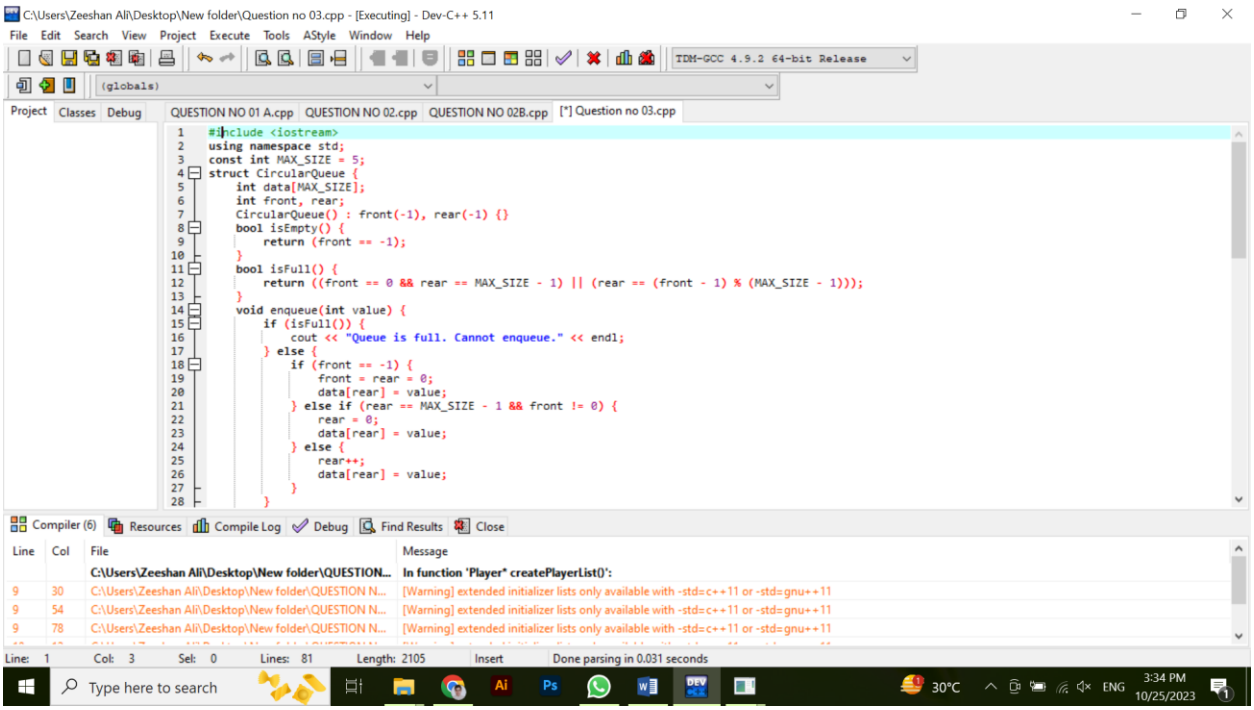


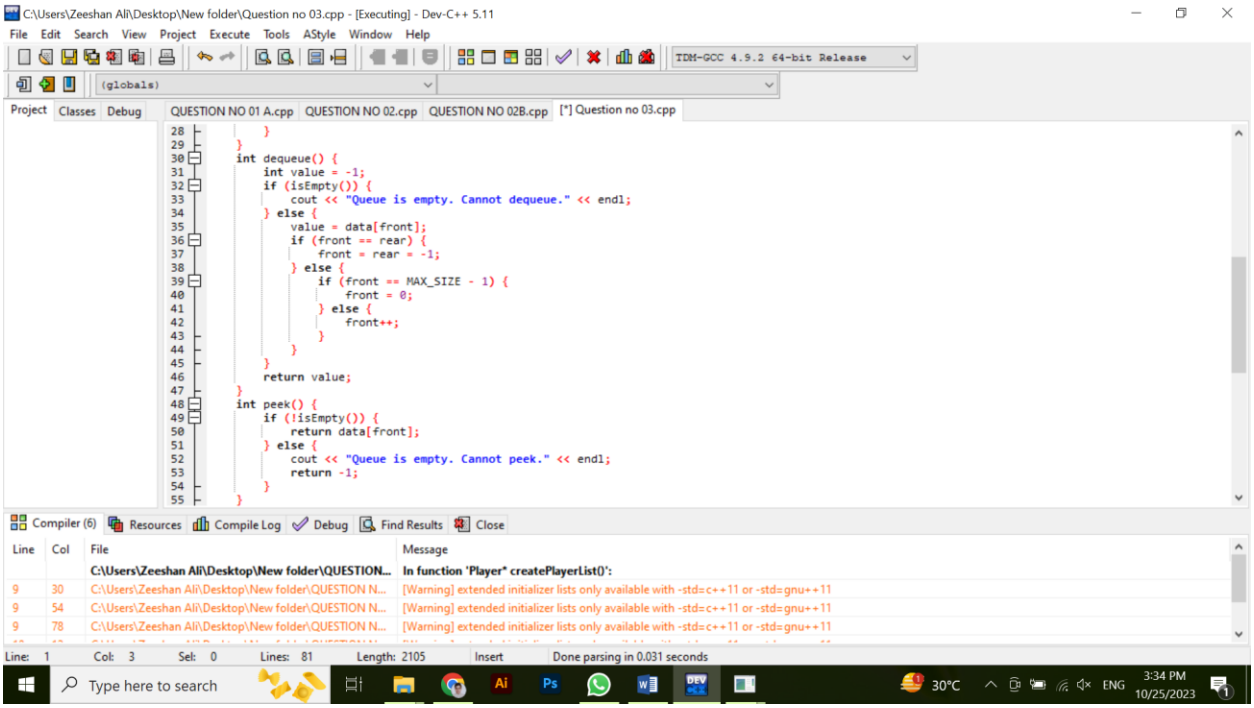
Output:

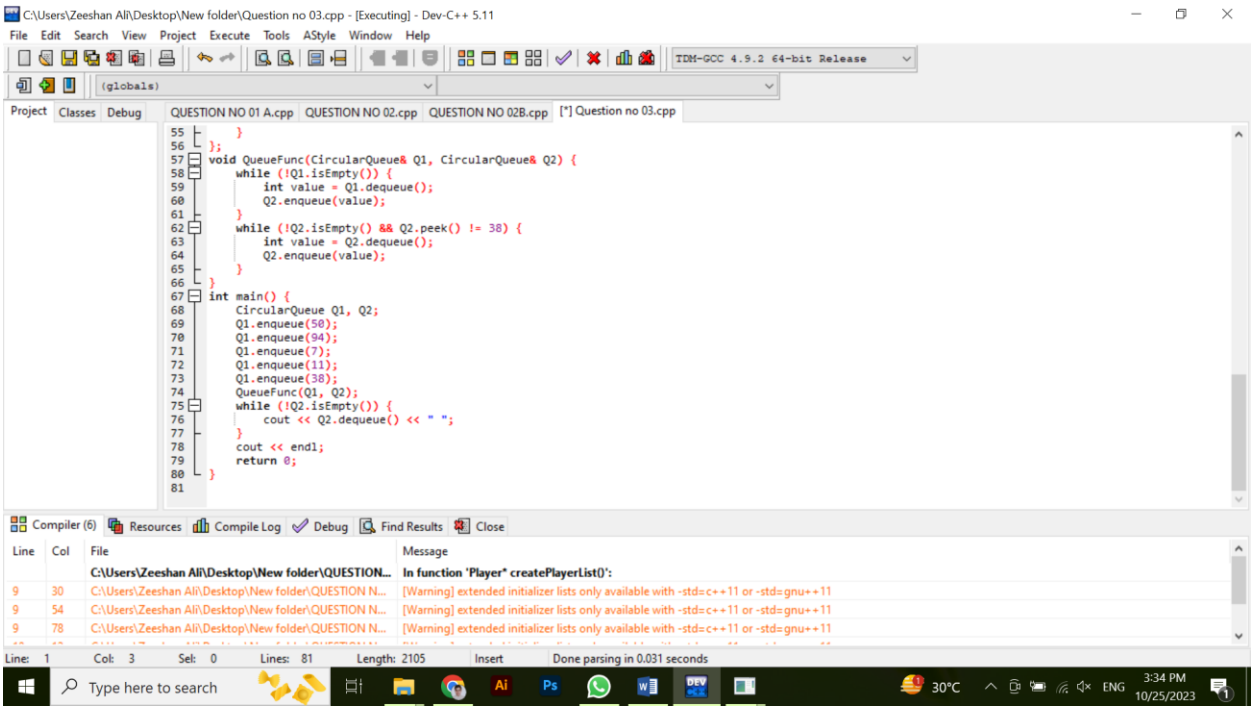


Question no 04:

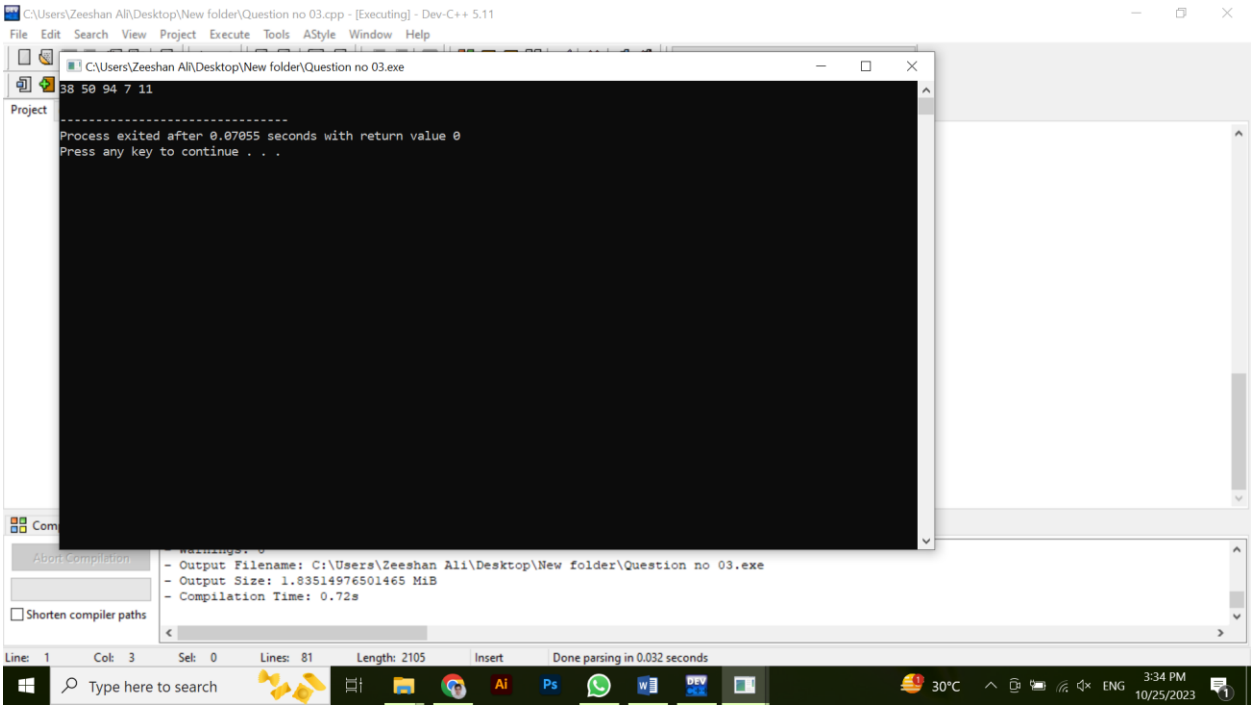
Code:




C:\Users\Zeeshan Ali\Desktop\New folder\Question no 03.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
QUESTION NO 01 A.cpp
QUESTION NO 02.cpp
QUESTION NO 02B.cpp
[*] Question no 03.cpp
28 }
29 }
30 int dequeue() {
31 int value = -1;
32 if (isEmpty()) {
33 cout << "Queue is empty. Cannot dequeue." << endl;
34 } else {
35 value = data[front];
36 if (front == rear) {
37 front = rear = -1;
38 } else {
39 if (front == MAX_SIZE - 1) {
40 front = 0;
41 } else {
42 front++;
43 }
44 }
45 }
46 return value;
47 }
48 int peek() {
49 if (!isEmpty()) {
50 return data[front];
51 } else {
52 cout << "Queue is empty. Cannot peek." << endl;
53 return -1;
54 }
55 }
Compiler (6) Resources Compile Log Debug Find Results Close
Line Col File Message
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION... In function 'Player* createPlayerList()':
9 30 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
9 54 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
9 78 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
Line: 1 Col: 3 Sel: 0 Lines: 81 Length: 2105 Insert Done parsing in 0.031 seconds
Type here to search
30°C
ENG
3:34 PM
10/25/2023


C:\Users\Zeeshan Ali\Desktop\New folder\Question no 03.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
QUESTION NO 01 A.cpp
QUESTION NO 02.cpp
QUESTION NO 02B.cpp
[*] Question no 03.cpp
55 }
56 };
57 void QueueFunc(CircularQueue& Q1, CircularQueue& Q2) {
58 while (!Q1.isEmpty()) {
59 int value = Q1.dequeue();
60 Q2.enqueue(value);
61 }
62 while (!Q2.isEmpty() && Q2.peek() != 38) {
63 int value = Q2.dequeue();
64 Q2.enqueue(value);
65 }
66 }
67 int main() {
68 CircularQueue Q1, Q2;
69 Q1.enqueue(50);
70 Q1.enqueue(94);
71 Q1.enqueue(7);
72 Q1.enqueue(11);
73 Q1.enqueue(38);
74 QueueFunc(Q1, Q2);
75 while (!Q2.isEmpty()) {
76 cout << Q2.dequeue() << " ";
77 }
78 cout << endl;
79 return 0;
80 }
81
Compiler (6) Resources Compile Log Debug Find Results Close
Line Col File Message
C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION... In function 'Player* createPlayerList()':
9 30 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
9 54 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
9 78 C:\Users\Zeeshan Ali\Desktop\New folder\QUESTION N... [Warning] extended initializer lists only available with -std=c++11 or -std=gnu++11
Line: 1 Col: 3 Sel: 0 Lines: 81 Length: 2105 Insert Done parsing in 0.031 seconds
Type here to search
30°C
ENG
3:34 PM
10/25/2023

Output:


C:\Users\Zeeshan Ali\Desktop\New folder\Question no 03.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
C:\Users\Zeeshan Ali\Desktop\New folder\Question no 03.exe
38 50 94 7 11

Process exited after 0.07055 seconds with return value 0
Press any key to continue . . .
Project
Abort Compilation
Shorten compiler paths
- Output Filename: C:\Users\Zeeshan Ali\Desktop\New folder\Question no 03.exe
- Output Size: 1.83514976501465 MiB
- Compilation Time: 0.72s
Line: 1 Col: 3 Sel: 0 Lines: 81 Length: 2105 Insert Done parsing in 0.032 seconds
Type here to search
30°C
ENG
3:34 PM
10/25/2023