

02/11

## Ascending PQ

```
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
#define n 3

int prio[n];
int count=0;

void insert(int data) {
    int i=0;
    if (count == n)
        {
            printf("Queue overflow \n");
            return;
        }
    if (count == 0)
        prio[count + 1] = data;
    else
        for (i = count - 1; i >= 0; i--) {
            if (data < prio[i]) {
                prio[i + 1] = prio[i];
            }
            else
                break;
        }
}
```

```
    prio[i] = data;  
    count++;  
}  
}
```

```
int removeData() {  
    return prio[-count];  
}
```

```
void display()  
{
```

```
    int i;  
    if (count == 0)  
    {
```

```
        printf("queue is empty\n");  
        return;
```

```
}
```

```
    printf("contents of queue: ");  
    for (i = 0; i < count; i++)  
    {
```

```
        printf("%d ", prio[i]);
```

```
    }  
    printf("\n");
```

```
int main() {
```

```
    int choice, item;
```

```
    for (;;) {
```

```
        printf("\n 1: insert 2: delete, largest 3: display  
        4: exit\n");
```

```
printf("Enter the choice:");
scanf("%d", &choice);
switch(choice)
{
    case 1: printf("Enter the item to be inserted:");
               scanf("%d", &item);
               insert(item);
               break;
    case 2: item = removeData();
              if(item == -1)
                  printf("Queue is empty");
              else
                  printf("item deleted = %d\n", item);
              break;
    case 3: display();
              break;
    default: exit(0);
}
```

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Files main.c

```
1 #include <stdio.h>
2 #include <string.h>
3 #include <stdlib.h>
4 #define n 3
5
6 int prio[n];
7 int count = 0;
8
9 void insert(int data){
10     int i = 0;
11     if(count==n)
12     {
13         printf("Queue overflow\n");
14         return;
15     }
16     // if queue is empty, insert the data
17     if(count == 0){
18         prio[count++] = data;
19     }else{
20         // start from the right end of the queue
21         for(i = count - 1; i >= 0; i--){
22             // if data is larger, shift existing item
23             // to right end
24             if(data < prio[i]){
25                 prio[i+1] = prio[i];
```

clang-7 -pthread -lm -o main main.c  
clang-7 -pthread -lm -o main main.c  
./main

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :1  
Enter the item to be inserted :3

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :1  
Enter the item to be inserted :34

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :1  
Enter the item to be inserted :12

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :3  
Contents of queue: 3 12 34

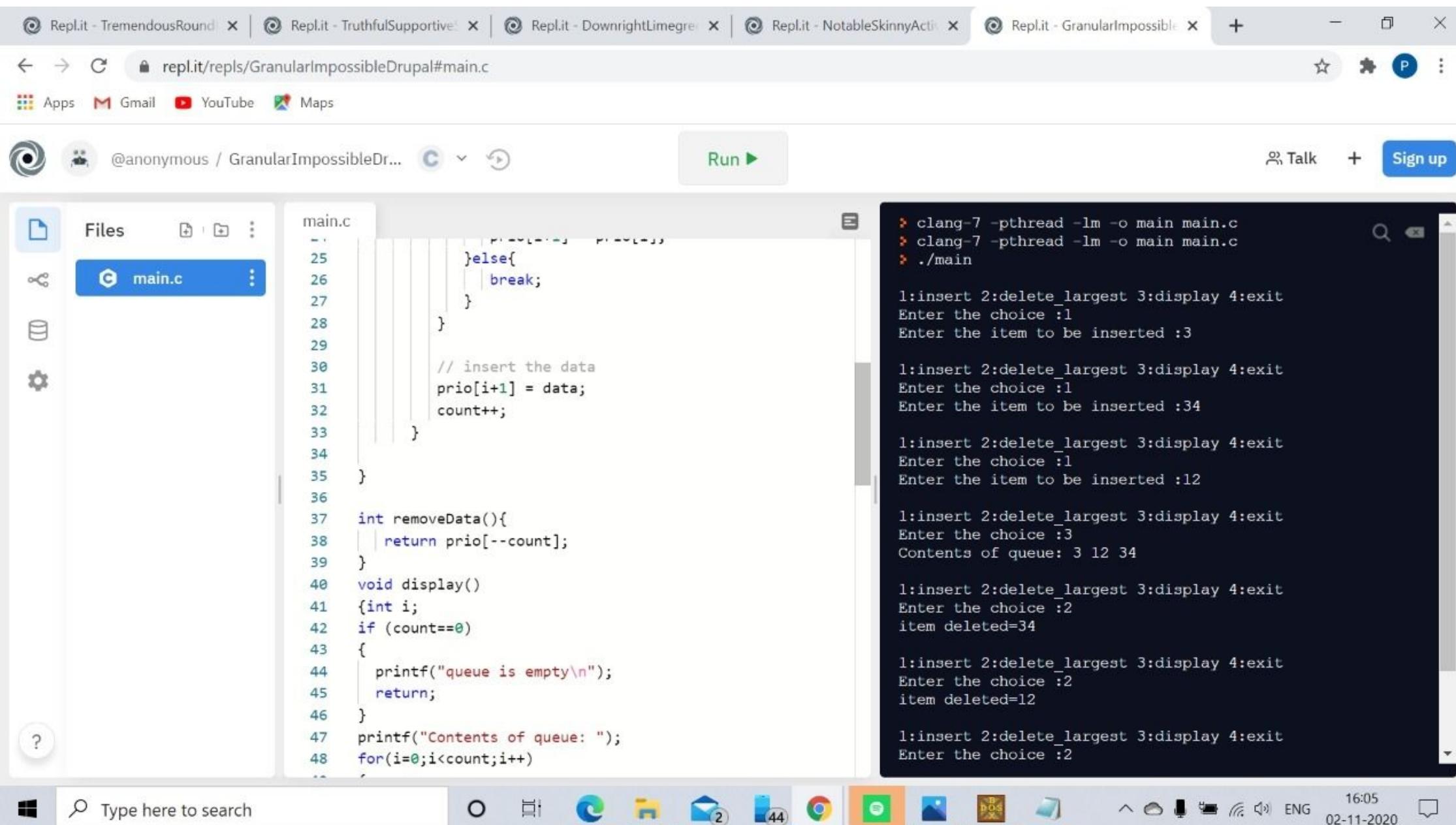
1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2  
item deleted=34

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2  
item deleted=12

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2

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Files main.c :

```
main.c
46     for(i=0,i<COUNT,i++)
47     {
48         printf("%d ",prio[i]);
49     }
50     printf("\n");
51 }
52
53
54
55 int main()
56 {
57     int choice,item;
58     for(;;)
59     {
60         printf("\n1:insert 2:delete_largest 3:display
61             4:exit\n");
62         printf("Enter the choice :");
63         scanf("%d",&choice);
64         switch(choice)
65         {
66             case 1:printf("Enter the item to be inserted :");
67             scanf("%d",&item);
68             insert(item);
69             break;
70             case 2:item=removeData();
71             if(item==-1)
72                 printf("Queue is empty\n");
73             else
```

clang-7 -pthread -lm -o main main.c  
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./main

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Enter the choice :1  
Enter the item to be inserted :12

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :3  
Contents of queue: 3 12 34

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2  
item deleted=34

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2  
item deleted=12

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2

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Files main.c

```
main.c
66     insert(item);
67     break;
68     case 2:item=removeData();
69     if(item== -1)
70     printf("Queue is empty\n");
71     else
72     printf("item deleted=%d\n",item);
73     break;
74     case 3:display();
75     break;
76     default:exit (0);
77 }
78 }
79 }
80 }
81 }
82 }
```

clang-7 -pthread -lm -o main main.c  
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1:insert 2:delete\_largest 3:display 4:exit  
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Contents of queue: 3 12 34

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Enter the choice :2  
item deleted=34

1:insert 2:delete\_largest 3:display 4:exit  
Enter the choice :2  
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