main.c

```c
/*Consider two students reading the word. The first student reads from left to right and the
second student was reads from right to left. After reading both the student spelled out the
same word. Develop an application (C Program) to simulate the above situation using suitable
data structure.*/

#include <stdio.h>
#include <stdlib.h>
int count = 0;
struct Node
{
    char item;
    struct Node *link;
};
typedef struct Node *NODE;
NODE getNode()
{
    NODE temp;
    temp = (NODE)malloc(sizeof(struct Node));
    return temp;
}
void freeNode(NODE x)
{
    free(x);
}
NODE insert_rear(NODE first, char item)
{
    NODE temp, cur;
    count += 1;
    temp = getNode();
    temp->item = item;
    temp->link = NULL;
    cur = first;
    if (cur == NULL)
    {
        return temp;
    }
    while (cur->link != NULL)
    {
        cur = cur->link;
```

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        cur = cur->link;
    }
    cur->link = temp;
    return first;
}
NODE deletefront(NODE first)
{
    if (first == NULL)
    {
        printf("list is empty\n");
        return first;
    }
    NODE temp;
    count -= 1;
    temp = first;
    temp = temp->link;
    free(first);
    first = temp;
    return first;
}
void display(NODE first)
{
    NODE temp;
    if (first == NULL)
    printf("list is empty cannot display items\n");
    for (temp = first; temp != NULL; temp = temp->link)
    {
        printf("%c\n", temp->item);
    }
}
void compare(NODE first1,NODE first2)
{
    NODE temp1=first1,temp2=first2;
    while(temp1!=NULL)
    {
    if(temp1->item!=temp2->item)
    {
        printf("Spelled words are different \n");
```

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```
77          return;
78      }
79      temp1=temp1->link;
80      temp2=temp2->link;
81      }
82      printf("Spelled words are same \n");
83  }
84  void main()
85  {
86      char item;
87      int a=1, choice = 1, pos;
88      NODE first = NULL;
89      NODE first1 = NULL;
90      NODE first2 = NULL;
91      printf("Enter characters read by first student :\n");
92      while (choice != 4)
93      {
94          printf("1:Character Read\n2:Delete\n3:Display_list\n4:Exit\n");
95          printf("enter the choice:\n");
96          scanf("%d", &choice);
97          switch (choice)
98          {
99              case 1:
100             printf("Character Read:");
101             scanf("\n%c",&item);
102             first1 = insert_rear(first1,item);
103             break;
104             case 2:
105             first1 = deletefront(first1);
106             display(first1);
107             break;
108             case 3:
109             display(first1);
110             break;
111             case 4:
112             break;
113             default:
114             printf("\nInvalid input");
115         }
```

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```
            case 3:
            display(first1);
            break;
            case 4:
            break;
            default:
            printf("\nInvalid input");
        }
    }
    printf("Enter characters read by second student :\n");
    choice=1;
    while (choice != 4)
    {
        printf("1:Character Read\n2:Delete\n3:Display_list\n4:Exit\n");
        printf("enter the choice\n");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1:
            printf("Character Read:");
            scanf("\n%c",&item);
            first2 = insert_rear(first2,item);
            break;
            case 2:
            first2 = deletefront(first2);
            display(first2);
            break;
            case 3:
            display(first2);
            break;
            case 4:
            break;
            default:
            printf("\nInvalid input");

        }
    }
    compare(first1,first2);
}
```

```
Enter characters read by first student :
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice:
1
Character Read:m
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice:
1
Character Read:a
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice:
1
Character Read:d
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice:
1
Character Read:a
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice:
1
Character Read:m
1:Character Read
```

```
enter the choice:
4
Enter characters read by second student :
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:m
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:a
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:d
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:a
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
```

```
3:Display_list
4:Exit
enter the choice
1
Character Read:a
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:d
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:a
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
1
Character Read:m
1:Character Read
2:Delete
3:Display_list
4:Exit
enter the choice
4
Spelled words are same


...Program finished with exit code 24
Press ENTER to exit console.
```

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```c
/*An Application is to be developed to manage the records of the candidates who register for
the NPTEL online course. The NPTEL has planned to conduct the course for 250 candidates
on First Come First Serve course registration basis. Once all the 250 candidates are registered
the message should be displayed as "Registration Closed" and no student is allowed to leave
the course until the completion. Identify the suitable data structure and develop an
application(C Program) for the above scenario.*/
#include<stdio.h>
#include<stdlib.h>
#define QUE_SIZE 3
int q[250];
int item;int front=0,rear=-1;
void insertrear()
{

    if(rear==QUE_SIZE-1)
    {
        printf("Registration Closed\n");
        return ;
    }
    rear=rear+1;
    q[rear]=item;
    printf("Registered successfully\n");
}
void displayQ()
{
    int i;
    if(front>rear)
    {
        printf("No registrations yet\n");
        return ;
    }
    printf("Registered students roll number:\n");
    for(i=front;i<=rear;i++)
    {
        printf("%d\n",q[i]);
    }
}
int main()
{
```

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```c
    q[rear]=item;
    printf("Registered successfully\n");
}
void displayQ()
{
    int i;
    if(front>rear)
    {
        printf("No registrations yet\n");
        return ;
    }
    printf("Registered students roll number:\n");
    for(i=front;i<=rear;i++)
    {
        printf("%d\n",q[i]);
    }
}
int main()
{
    int choice;
    for(;;)
    {
        printf("\n1:Register\n2:Registered students roll no. \n3:Exit\n");
        printf("Enter the choice\n");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:printf("Enter your roll no.\n");
            scanf("%d",&item);
            insertrear();
            break;
            case 2:displayQ();
            break;
            case 3:exit(0);
            default:printf("Invalid choice\n");
        }
    }
    return 0;
}
```

input

```
1:Register
2:Registered students roll no.
3:Exit
Enter the choice
1
Enter your roll no.
34
Registered successfully

1:Register
2:Registered students roll no.
3:Exit
Enter the choice
1
Enter your roll no.
57
Registered successfully

1:Register
2:Registered students roll no.
3:Exit
Enter the choice
1
Enter your roll no.
68
Registered successfully

1:Register
2:Registered students roll no.
3:Exit
Enter the choice
1
Enter your roll no.
91
Registration Closed
```

```
1:Register
2:Registered students roll no.
3:Exit
Enter the choice
1
Enter your roll no.
68
Registered successfully

1:Register
2:Registered students roll no.
3:Exit
Enter the choice
1
Enter your roll no.
91
Registration Closed

1:Register
2:Registered students roll no.
3:Exit
Enter the choice
2
Registered students roll number:
34
57
68

1:Register
2:Registered students roll no.
3:Exit
Enter the choice
3


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