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#include <stdio.h>
#include <stdlib.h>

struct PQueue
{
    char n[4];
    int pr;
    struct PQueue *next;
} *front = NULL;

int count = 0;

void Insert()
{
    struct PQueue *temp = malloc(sizeof(struct PQueue));
    if (temp == NULL)
        printf("Heap Overflow\n");
    else
    {
        printf("Enter the Process : ");
        scanf("%s", temp->n);
        printf("Priority : ");
        scanf("%d", &temp->pr);
        temp->next = NULL;
        if (front == NULL || temp->pr < front->pr)
        {
            temp->next = front;
            front = temp;
        }
        else
        {
            struct PQueue *p = front;
            while (p->next != NULL && p->next->pr <= temp->pr)
                p = p->next;
            temp->next = p->next;
            p->next = temp;
        }
        count++;
    }
}

void Execute()
{
    if (front == NULL)
        printf("Queue Underflow\n");
    else
```

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{
    struct PQueue *temp = front;
    front = front->next;
    printf("Process Executed: %s\n", temp->n);
    free(temp);
    count--;
}
}
void Display()
{
    if (front == NULL)
        printf("Queue is Empty\n");
    else
    {
        struct PQueue *temp = front;
        printf("Process\tPriority\n");
        while (temp != NULL)
        {
            printf("%s\t%d\n", temp->n, temp->pr);
            temp = temp->next;
        }
    }
}

int main()
{
    int choice;
    printf("\n1. Insert Process\n2. Execute\n3. Total no of Process\n4.
Display\n5. Exit\n");
    while (1)
    {
        printf("Enter the choice: ");
        scanf("%d", &choice);
        getchar();
        switch (choice)
        {
            case 1:
                Insert();
                Display();
                break;
            case 2:
                Execute();
                Display();
                break;
            case 3:
                printf("Total number of Process -> %d\n", count);

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        break;
    case 4:
        Display();
        break;
    case 5:
        printf("Exiting...");
        exit(0);
        break;
    }
}
return 0;
}

```

## OUTPUT:

```

1. Insert Process
2. Execute
3. Total no of Process
4. Display
5. Exit
Enter the choice: 1
Enter the Process : abc
Priority : 1
Process Priority
abc      1
Enter the choice: 1
Enter the Process : aka
Priority : 2
Process Priority
abc      1
aka      2
Enter the choice: 1
Enter the Process : xyz
Priority : 3
Process Priority
abc      1
aka      2
xyz      3
Enter the choice: 2
Process Executed: abc
Process Priority
aka      2
xyz      3
Enter the choice: 1
Enter the Process : abc
Priority : 1
Process Priority
abc      1
aka      2
xyz      3

```

```

Process Priority
abc      1
aka      2
xyz      3
Enter the choice: 1
Enter the Process : sem
Priority : 3
Process Priority
abc      1
aka      2
xyz      3
sem      3
Enter the choice: 1
Enter the Process : neg
Priority : -1
Process Priority
neg      -1
abc      1
aka      2
xyz      3
sem      3
Enter the choice: 3
Total number of Process -> 5
Enter the choice: 4
Process Priority
neg      -1
abc      1
aka      2
xyz      3
sem      3
Enter the choice: 5
Exiting...
PS C:\Users\aadil\Desktop\CSE\OS Lab>

```