PRIORITY QUEUE

Exp. No.:
AIM:

ALGORITHM:

PROGRAM:

```c
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>

struct elem
{
  int data;
  int p;
  struct elem *next;
};

void addQueue(struct elem **head, int data, int p)
{
  struct elem *temp, *temp2, *prev;
  temp = *head;
  if (temp == NULL)
  {
    temp = (struct elem *)malloc(sizeof(struct elem));
    temp->data = data;
    temp->p = p;
    temp->next = NULL;
    *head = temp;
  }
  else
  {
    temp2 = (struct elem *)malloc(sizeof(struct elem));
    temp2->data = data;
    temp2->p = p;
    prev = temp;
    while (temp != NULL && temp->p >= p)
    {
      prev = temp;
      temp = temp->next;
    }
    if (temp == NULL)
    {
```

```c
                prev->next = temp2;
                temp2->next = NULL;
            }
            else if (prev == temp)
            {
                *head = temp2;
                temp2->next = temp;
            }
            else
            {
                prev->next = temp2;
                temp2->next = temp;
            }
        }
    }
}

void traverse(struct elem *head)
{
    struct elem *temp;
    temp = head;
    while (temp != NULL)
    {
        printf("Element %d, Priority %d\n", temp->data, temp->p);
        temp = temp->next;
    }
}

int main()
{
    int ch, data, p;
    struct elem *priority_queue = NULL;
    printf("Do You Want to Make Priority Queue(1 to Start): ");
    scanf("%d", &ch);
    while (ch)
    {
        printf("Enter Data and Priority: ");
        scanf("%d", &data);
        scanf("%d", &p);
        addQueue(&priority_queue, data, p);
```

```c
        printf("Do You Want to Continue(0 to Exit): ");
        scanf("%d", &ch);
    }
    traverse(priority_queue);
    getch();
    clrscr();
    return 0;
}
```

OUTPUT:

```
Do You Want to Make Priority Queue(1 to Start): 1
Enter Data and Priority: 5 1
Do You Want to Continue(0 to Exit): 1
Enter Data and Priority: 25 7
Do You Want to Continue(0 to Exit): 1
Enter Data and Priority: 3 4
Do You Want to Continue(0 to Exit): 1
Enter Data and Priority: -9 2
Do You Want to Continue(0 to Exit): 1
Enter Data and Priority: 47 4
Do You Want to Continue(0 to Exit): 1
Enter Data and Priority: 25 3
Do You Want to Continue(0 to Exit): 0
Element 25, Priority 7
Element 3, Priority 4
Element 47, Priority 4
Element 25, Priority 3
Element -9, Priority 2
Element 5, Priority 1
```

RESULT: