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```
//Write a program for creating Max Heap using INSERT
#include<iostream>
using namespace std;
class InsertMaxHeap
{
    int n;
    int a[20];
public:
    void insert(int a[], int n);
    void get();
    void show();
};
void InsertMaxHeap::get()
{
    cout << "Enter how many element insert into heap : ";
    cin >> n;
    cout << "Enter heap element : \n";
    for (int i = 1; i <= n; i++)
    {
        cin >> a[i];
        insert(a, i);
    }
}
void InsertMaxHeap::insert(int a[], int n)
{
    int i, j, item;
    j = n;
    i = n / 2;
    item = a[n];
    while (i > 0 && a[i] < item)
    {
        a[j] = a[i];
        j = i;
        i = i / 2;
    }
    a[j] = item;
}
void InsertMaxHeap::show()
{
    cout << "Max heap using insert :\n";
    for (int i = 1; i <= n; i++)
    {
        cout << a[i];
        cout << "\t";
    }
}
int main()
{
    InsertMaxHeap obj;
    obj.get();
    obj.show();
    return 0;
}
```

```
// Output :

Enter how many element insert into heap:7
Enter heap element:
40 80 35 90 45 50 70
Max heap using insert:
```

```
90      80      70      40      45      35      50
```

```
//Write a program for creating Min Heap using INSERT
```

```
#include<iostream>
using namespace std;
class InsertMinHeap
{
    int n;
    int a[20];
public:
    void insert(int a[], int n);
    void get();
    void show();
};
void InsertMinHeap::get()
{
    cout << "Enter how many element insert into heap:";
    cin >> n;
    cout << "Enter heap element:\n";
    for (int i = 1; i <= n; i++)
    {
        cin >> a[i];
        insert(a, i);
    }
}
void InsertMinHeap::insert(int a[], int n)
{
    int i, j, item;
    j = n;
    i = n / 2;
    item = a[n];
    while (i > 0 && a[i] > item)
    {
        a[j] = a[i];
        j = i;
        i = i / 2;
    }
    a[j] = item;
}
```

```
void InsertMinHeap::show()
{
    cout << "Min heap using insert:\n";
    for (int i = 1; i <= n; i++)
    {
        cout << a[i];
        cout << "\t";
    }
}
int main()
{
    InsertMinHeap obj;
    obj.get();
    obj.show();
    return 0;
}
```

Output :

```
Enter how many element insert into heap:5
Enter heap element:5 300 40 2 10
Min heap using insert: 2 5 40 300 10
```

//Write a program for creating Max Heap using ADJUST/HEAPIFY

```
#include<iostream>
#include<conio.h>
using namespace std;
class AdjustMaxHeap
{
private:
    int a[10], n, i;
public:
    void Adjust(int a[], int i, int n);
    void Heapify(int a[], int n);
    void get();
    void show();
};
void AdjustMaxHeap::get()
{
    cout << "Enter the size of array : ";
    cin >> n;
    cout << "Enter " << n << " element : ";
    for (int b = 1; b <= n; b++)
    {
        cin >> a[b];
    }
    Heapify(a, n);
}
void AdjustMaxHeap::Heapify(int a[], int n)
{
    for (i = (n / 2); i >= 1; i--)
    {
        Adjust(a, i, n);
    }
```

```
}
void AdjustMaxHeap::Adjust(int a[], int i, int n)
{
    int j, item;
    j = 2 * i;
    item = a[i];
    while (j <= n)
    {
        if (j < n && a[j] < a[j + 1])
        {
            j = j + 1;
        }
        if (item >= a[j])
        {
            return;
        }
        else
        {
            a[j / 2] = a[j];
            j = 2 * j;
        }

    }
    a[j / 2] = item;

}
void AdjustMaxHeap::show()
{
    cout << "element after using adjust heapify : ";
    for (int c = 1; c <= n; c++)
    {
        cout << a[c] << "\t";
    }
}
int main()
{
    AdjustMaxHeap obj;
    obj.get();
    obj.show();
    return(0);
}
```

//Output:

Enter the size of array : 7

Enter 7 element : 40 80 35 90 45 50 70

element after using adjust heapify : 90 80 70 40 45 50 35

//Write a program for creating Min Heap using ADJUST/HEAPIFY

```
#include<iostream>
#include<conio.h>
using namespace std;
class AdjustMinHeap
{
private:
    int a[10], n, i;
public:
    void Adjust(int a[], int i, int n);
    void Heapify(int a[], int n);
    void get();
```

```
    void show();
};
void AdjustMinHeap::get()
{
    cout << "Enter the number of nodes : ";
    cin >> n;
    cout << "Enter " << n << " nodes : ";
    for (int b = 1; b <= n; b++)
    {
        cin >> a[b];
    }
    Heapify(a, n);
}
void AdjustMinHeap::Heapify(int a[], int n)
{
    for (i = (n / 2); i >= 1; i--)
    {
        Adjust(a, i, n);
    }

}
void AdjustMinHeap::Adjust(int a[], int i, int n)
{
    int j, item;
    j = 2 * i;
    item = a[i];
    while (j <= n)
    {
        if (j < n && a[j] > a[j + 1])
        j++;
        if (item <= a[j])
        break;
        a[j / 2] = a[j];
        j = 2 * j;
    }
    a[j / 2] = item;

}
void AdjustMinHeap::show()
{
    cout << "element after using adjust heapify : ";
    for (int c = 1; c <= n; c++)
    {
        cout << a[c] << "\t";
    }
}
int main()
{
    AdjustMinHeap obj;
    obj.get();
    obj.show();
    return 0;
}
```

Output :

Enter 7 nodes : 40 80 35 90 45 50 70

element after using adjust heapify : 35 45 40 90 80 50 70