

```
class SortTest
```

```
{
```

```
    static void insertionsort (int[] x)
```

```
    {
```

```
        for (int i=1; i < x.length; i++)
```

```
        { // insert x[i] into the already sorted  
          // sequence x[0]...x[i-1]
```

```
            int key = x[i];
```

```
            int j = i;
```

```
            while ( j > 0 && key < x[j-1] )
```

```
            { // key should be in front of x[j-1]
```

```
                x[j] = x[j-1];
```

```
                j-- ;
```

```
            }
```

```
            // now j==0 or, if j>0, then x[j-1] <= key
```

```
            x[j] = key;
```

```
        }
```

```
    }
```

```
    public static void main (String[] args)
```

```
    {
```

```
        int[] A = {3, 5, 2, 1, 20};
```

```
        outarray(A, "before sorting:");
```

```
        insertionsort (A) ;
```

```
        outarray(A, "after sorting:");
```

```
    }
```

```
static void outarray (int[] x, String info)
{
    System.out.println(info);
    for (int i=0; i < x.length; i++)
        System.out.print(x[i] + " ");
    System.out.println();
}
}
```