

**NAME: JERRY DAVID R (192424401)**

**COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS**

**COURSE CODE: CSA0302**

Experiment 30: Insertion Sort

Code:

```
#include <stdio.h>
```

```
int main() {
```

```
    int arr[100], n, i, j, key;
```

```
    printf("Enter number of elements: ");
```

```
    scanf("%d", &n);
```

```
    printf("Enter %d elements:\n", n);
```

```
    for(i = 0; i < n; i++)
```

```
        scanf("%d", &arr[i]);
```

```
    printf("Original array: ");
```

```
    for(i = 0; i < n; i++)
```

```
        printf("%d ", arr[i]);
```

```
    printf("\n");
```

```
    // Insertion Sort
```

```
    for(i = 1; i < n; i++) {
```

```
        key = arr[i];
```

```
        j = i - 1;
```

```
        while(j >= 0 && arr[j] > key) {
```

```
            arr[j + 1] = arr[j];
```

```
        j--;  
    }  
    arr[j + 1] = key;  
}  
  
printf("Sorted array (Insertion Sort): ");  
for(i = 0; i < n; i++)  
    printf("%d ", arr[i]);  
printf("\n");  
  
return 0;  
}
```

Output:

```
Enter number of elements: 6  
Enter 6 elements:  
7 2 9 3 4 10  
Original array: 7 2 9 3 4 10  
Sorted array (Insertion Sort): 2 3 4 7 9 10
```

```
=== Code Execution Successful ===
```