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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 ===
```