Experiment No 9

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ROll No:- 65

Div:-A

Subject:- Data Structures

Title: Implementation of Sorting Algorithms

Problem Statements:

1.Implement Insertion sort

```
#include<stdio.h>
int main()
{
   int a[10],key,i,j;
   printf("Enter number\n");
   for(i=0;i<10;i++)
   {
      scanf("%d",&a[i]);
   }
   for(i=1;i<10;i++)
   {
      key = a[i];
      j=i-1;
      while(j>=0 && a[j]>key)
      {
         a[j+1] = a[j];
         j=j-1;
      }
      a[j+1] = key;
   }

   printf("Sorted Numbers are\n");
   for(i=0;i<10;i++)
   {
      printf("%d\t",a[i]);

   }
}
```

2) Implement Selection Sort

```
#include <stdio.h>
int num[5], temp, i, j;
void selecttion_algo()
{
   for (int i = 0; i < 5; i++)
   {
      for (int j = i + 1; j < 5; j++)
      {
         if (num[i] > num[j])
         {
            temp = num[i];
            num[i] = num[j];
            num[j] = temp;
            printf("Minimum no is found at Pass: %d\n", j);
            printf("Minimum No is:%d\n", num[i]);
            printf("%d is swapping with: %d\n", num[j], num[i]);
            for (int i = 0; i < 5; i++)
            {
               printf("%d\n", num[i]);
            }
         }
         else if (num[i] < num[j])
         {
            printf("Pass: %d\n", j);
            printf("Minimum No is not found at location: %d\n", j + 1);
            for (int i = 0; i < 5; i++)
            {
               printf("%d\n", num[i]);
            }
         }
      }
   }
}

int main()
{
   printf("Enter 5 numbers\n");
   for (int i = 0; i < 5; i++)
   {
      scanf("%d", &num[i]);
   }

   selecttion_algo();
   printf("sorted numbers are\n");
   for (int i = 0; i < 5; i++)
   {
      printf("%d\n", num[i]);
   }
}
```