**CSC221: DATA STRUCTURES & ALGORITHMS**

**BSCS 3*B***

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| |  | | --- | | LAB | | **04** | | Implementation for elementary sorting algorithms   * Bubble Sort * Selection Sort * Insertion Sort |



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**Submission Date:**

[12/03/2018]

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| Lab Task(s): |
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| |  |  | | --- | --- | | 1 | Create a program that take an array of 10 inputs from the user and generate the sorted out put using the following Algorithms;  • Bubble Sort  • Insertion Sort  • Selection Sort | | |

**SOURCECODE:**

#include<iostream>

using namespace std;

void input\_arr(int arr[], int size);

void insertion\_sort(int a[], int size);

void bubble\_sort(int a[], int size);

void selection\_sort(int a[], int size);

int main()

{

int const size = 10;

int a[size], b[size], c[size];

cout << "Enter 10 values for Array(A):" << endl;

input\_arr(a, size);

bubble\_sort(a, size);

cout << "\n\nEnter 10 values for Array(B):" << endl;

input\_arr(b, size);

insertion\_sort(b, size);

cout << "\n\nEnter 10 values for Array(C):" << endl;

input\_arr(c, size);

selection\_sort(c, size);

cout << "\n\n";

system("pause");

return 0;

}

void input\_arr(int arr[], int size)

{

for (int i = 0; i<size; i++)

cin >> arr[i];

}

void insertion\_sort(int a[], int size)

{

int temp = 0;

for (int i = 0; i<size; i++)

{

for (int j = i; j >= 1; j--)

{

if (a[j]<a[j - 1])

{

temp = a[j];

a[j] = a[j - 1];

a[j - 1] = temp;

}

}

}

cout << "\nInsertion Sort:" << endl;

for (int i = 0; i<size; i++)

cout << "[" << a[i] << "],";

cout << "\n\n";

}

void bubble\_sort(int a[], int size)

{

int temp;

for (int i = 0; i<size; i++)

{

for (int j = 0; j<size - 1; j++)

{

if (a[j]>a[j + 1])

{

temp = a[j];

a[j] = a[j + 1];

a[j + 1] = temp;

}

}

}

cout << "\nBubble sorte:" << endl;

for (int i = 0; i<size; i++)

cout << "[" << a[i] << "],";

}

void selection\_sort(int a[], int size)

{

int temp, loc, min;

for (int i = 0; i<size; i++)

{

min = a[i];

loc = i;

for (int j = i + 1; j<size; j++)

{

if (min>a[j])

{

min = a[j];

loc = j;

}

}

temp = a[i];

a[i] = a[loc];

a[loc] = temp;

}

cout << "\nSelection sort:" << endl;

for (int i = 0; i<size; i++)

cout << "[" << a[i] << "],";

}

**SCREENSHOT:**

