**Modern Education Society’s**

# College of Engineering, Pune

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| **NAME OF STUDENT:** Prathamesh Kalyan Sable | **CLASS:** SE Comp 1 |
| **SEMESTER/YEAR:** Sem-3 / 2022-23 | **ROLL NO:** 015 |
| **DATE OF PERFORMANCE:**  / / 2022 | **DATE OF SUBMISSION:** / /2022 |
| **EXAMINED BY:** Prof. R. H. Shende | **EXPERIMENT NO: B-5** |

**TITLE : SELECTION SORT USING TEMPLATE**

**PROBLEM STATEMENT :** Write a function template for selection sort that inputs, sorts and outputs an integer array and a float array.

# OBJECTIVES:

1. Provide programming insight using OOP constructs.
2. To lay a foundation for generic programming.

# OUTCOMES:

1. Develop programming application using object oriented programming language C++.
2. Analyze the strengths of object oriented programming.

# PRE-REQUISITES:

1. Knowledge of template.
2. Knowledge of selection sort.

# APPARATUS:

Working Computer system with g++ installed

**QUESTIONS:**

1. What is template, Explain Function and class template in detail.
2. Explain power of template.

**SOURCE CODE**

#include <iostream>

using namespace std;

template <class type>

void Selection\_sort(type arr[], int length)

{

    // minimun index variable

    int min\_ind;

    int j, i;

    type temp;

    // for loop for index up to n-1

    for (i = 0; i < length - 1; i++)

    {

        min\_ind = i;

        for (j = i + 1; j < length; j++)

        {

            if (arr[j] < arr[min\_ind])

                min\_ind = j;

        }

        // swap values

        temp = arr[i];

        arr[i] = arr[min\_ind];

        arr[min\_ind] = temp;

    }

}

template <class type>

void display(type \*arr, int length)

{

    for (int i = 0; i < length; i++)

    {

        cout << arr[i] << " ";

    }

    cout << endl;

}

int main()

{

    int n;

    int arr1[10];

    float arr2[10];

    cout << "Enter Number of elements in Integer Array:";

    cin >> n;

    cout << "Enter elements of array:" << endl;

    for (int i = 0; i < n; i++)

    {

        cin >> arr1[i];

    }

    cout << "Array Entered is " << endl;

    display<int>(arr1, n);

    // sorting array

    Selection\_sort<int>(arr1, n);

    cout << "Array After sorting is " << endl;

    display<int>(arr1, n);

    cout << "Enter Number of elements in Float Array:";

    cin >> n;

    cout << "Enter elements of array:" << endl;

    for (int i = 0; i < n; i++)

    {

        cin >> arr2[i];

    }

    cout << "Array Entered is " << endl;

    display<float>(arr2, n);

    // sorting array

    Selection\_sort<float>(arr2, n);

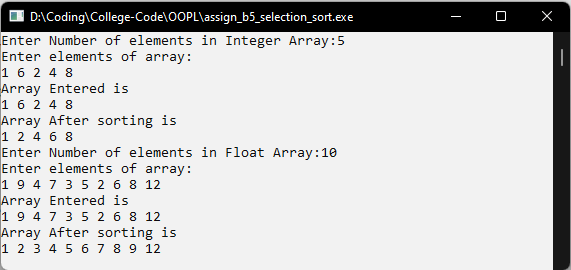
    cout << "Array After sorting is " << endl;

    display<float>(arr2, n);

    return 0;

}

**OUTPUT**

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