

# CSE Assignment (C++)

## Problem 1

### Question:

Write a c++ program to create a class `String_manip` with data member as char array.  
Write a member function to extract and remove the given substring from the original string

### Code:

```
#include <iostream>
#include <stdlib.h>

using namespace std;

class String_manip
{
private:
    char *strarr;
    string inarr;

public:
    String_manip(string &input)
    {
        inarr = input;
    }

    char *slice(int start, int end, int jump);
};

char *String_manip::slice(int start, int end, int jump = 1)
{
    int strlen = inarr.length();
    int count = 0;
    strarr = (char *)calloc(1, sizeof(char));

    for (int i = 0; inarr[i] != '\0';)
    {
        strarr = (char *)realloc(strarr, (count + 2) * sizeof(char));
        *(strarr + count) = inarr[i];
        i += jump;

        if (i > strlen || i == end)
        {
            break;
        }

        count++;
    }
}
```

```

        *(strarr + count + 1) = '\\0';

        return strarr;
    }

    int main()
    {
        string in = "penpineappleapplepen";
        String_manip man(in);
        char *result;

        result = man.slice(0, 7, 2);

        cout << result;

        free(result);

        return 0;
    }

```

**Output:**

```
pnieplapee
```

## Problem 2

**Question:**

*Write a c++ program to create a class Name with data member as char array. Write a member function to erase a particular character from the given input C++ string*

**Code:**

```

#include <iostream>
#include <stdlib.h>

using namespace std;

class Name
{
private:
    char *strarr;
    string inarr;

public:
    Name(string &input)
    {
        inarr = input;
    }

```

```

char *erase(const char &erased);
};

char *Name::erase(const char &erased)
{
    int count = 0;
    strarr = (char *)calloc(1, sizeof(char));

    for (int i = 0; inarr[i] != '\0'; i++)
    {
        if (inarr[i] == erased)
        {
            continue;
        }

        strarr = (char *)realloc(strarr, (count + 2) * sizeof(char));
        *(strarr + count) = inarr[i];
        count++;
    }

    *(strarr + count + 1) = '\0';

    return strarr;
}

int main()
{
    string in = "penpineappleapplepen";
    Name peru(in);
    char *result;

    result = peru.erase('p');

    cout << result;

    free(result);

    return 0;
}

```

**Output:**

```

eneinealealeen

```

## Problem 3

**Question:**

*Write a c++ program to create a class STUD with data members first\_name, last\_name, DOB. Create an array of 'n' students by reading last\_name, first\_name and DOB into a single string separated by commas and then extract each component*

into separate data members. Display the student data in the form of a table with headers

**Code:**

```
#include <iostream>

using namespace std;

class STUD
{
private:
    string first_name;
    string last_name;
    string DOB;

public:
    void getDetails()
    {
        getline(cin, first_name, ',');
        getline(cin, last_name, ',');
        getline(cin, DOB);
    }

    void printDetails()
    {
        cout << endl;
        cout << first_name << '\t' << last_name << '\t' << DOB;
    }
};

int main(int argc, char const *argv[])
{
    int n;

    cout << "How many students ? ";
    cin >> n;

    STUD students[n];

    for (int i = 0; i < n; i++)
    {
        students[i].getDetails();
    }

    cout << "FN" << '\t' << "LN" << '\t' << "DOB";

    for (int i = 0; i < n; i++)
    {
        students[i].printDetails();
    }
}
```

```
    return 0;
}
```

### Output :

```
How many students ? 2
Smol,Dude,12122002
Beeg,Dude,12122000
FN      LN      DOB

Smol    Dude    12122002
Beeg    Dude    12122000
```

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## Problem 4

### Question:

*Write a c++ program to compare two C++ strings (String class) and find whether they are exactly equal or not*

### Code:

```
#include <iostream>

using namespace std;

int main(int argc, char const *argv[])
{
    string one, two;

    cin >> one >> two;

    if (one == two)
    {
        cout << "Equal";
    }
    else
    {
        cout << "Not equal";
    }

    return 0;
}
```

### Output :

```
Apple
Apple
Equal
```

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## Problem 5

### Question:

Write a c++ program to sort the array of string objects of standard c++ string class

### Code:

```
#include <iostream>

using namespace std;

int main(int argc, char const *argv[])
{
    string starray[] = {"Orange", "Pineapple", "Chestnut", "Apple"};

    int switches = 0;

    do
    {
        switches = 0;

        for (int i = 0; i < 3; i++)
        {
            if (starray[i].compare(starray[i + 1]) > 0)
            {
                string temp = starray[i + 1];
                starray[i + 1] = starray[i];
                starray[i] = temp;

                switches++;
            }
        }
    } while (switches);

    cout << "[ ";

    for (int i = 0; i < 4; i++)
    {
        cout << starray[i] << ", ";
    }

    cout << "\b\b ]" << endl;

    return 0;
}
```

### Output:

```
[ Apple, Chestnut, Orange, Pineapple ]
```

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