Problem Statement : Write C++ program with class for String. Write a function

- copy, concatenate, check substring, equal, reverse and length
- frequency that determines the frequency of occurrence of particular character in the string.
- delete that accepts two integers, start and length. The function computes a new string that is equivalent to the original string, except that length characters being at start have been removed.
- Char delete that accepts a character c. The function returns the string with all occurrences of c removed.
- replace to make an in-place replacement of a substring w of a string by the string x. note that w may not be of same size of x
- palindrome to check whether given string is palindrome or not

```
#include<iostream>
#include<string>
using namespace std;
class String
{
   int len;
         public:
   inline void display(char c[])
   {
                  cout<<c;
         }
         int length(char *s)
         {
                  int i=0;
                  while(s[i]!='\0')
                  {
                           i++;
                  }
                  return i;
         }
         void copy(char *a,char *b)
         {
                  int i=0;
                  while(a[i]!='\0')
                  {
                           b[i]=a[i];
                           i++;
```

```
		}
		b[i]='\0';
}
	void concat(char *a,char *b)
	{
		int i=0;
		while(a[i]!='\0')
  {
			i++;
  }
		for(int j=0;b[j]!='\0';j++)
		{
			a[i]=b[j];
			i++;
		}
		a[i]='\0';
	}
	void search(char *a,char *b)
	{
		int len=length(b);
		int count,temp,flag=0;
		for(int i=0;a[i]!='\0';i++)
		{
			temp=i;
			count=0;
			for(int j=0;b[j]!='\0';j++)
			{
				if(a[temp]==b[j])
				{
					count++;
				}
				temp++;
				if(count==len)
				{
					cout<<"\n"<<b<<" is present at Location: "<<i+1;
					flag=1;
				}
			}
		}
		if(flag==0)
  {
			cout<<endl<<b<<" is not present in "<<a<<endl;
```

```
}
    }
    void reverse(char *a)
    {
            int len=length(a);
            char temp;
            int j=len-1;
            for(int i=0;i<(len/2);i++)
            {
                    temp=a[i];
                    a[i]=a[j];
                    a[j]=temp;
                    j--;
            }
    }
    void compare(char *a,char *b)
    {
            int i=0;
            while(a[i]==b[i] && a[i]!='\0')
                    i++;
            if(a[i]>b[i])
                    cout<<endl<<a<<" is greater than "<<b<<endl;
            else if(a[i]<b[i])
                    cout<<endl<<a<<" is less than "<<b<<endl;
            else
                    cout<<"\n"<<a<<" is equal to "<<b<<endl;
    }
    int frequency(char *a,char ch)
    {
            int count=0;
            for(int i=0;a[i]!='\0';i++)
            {
                    if(a[i]==ch)
                            count++;
            }
            return count;
    }
    void deleteS(char *a,int start,int l)
    {
            int i=start-1;
            while(a[i]!='\0')
            {
```

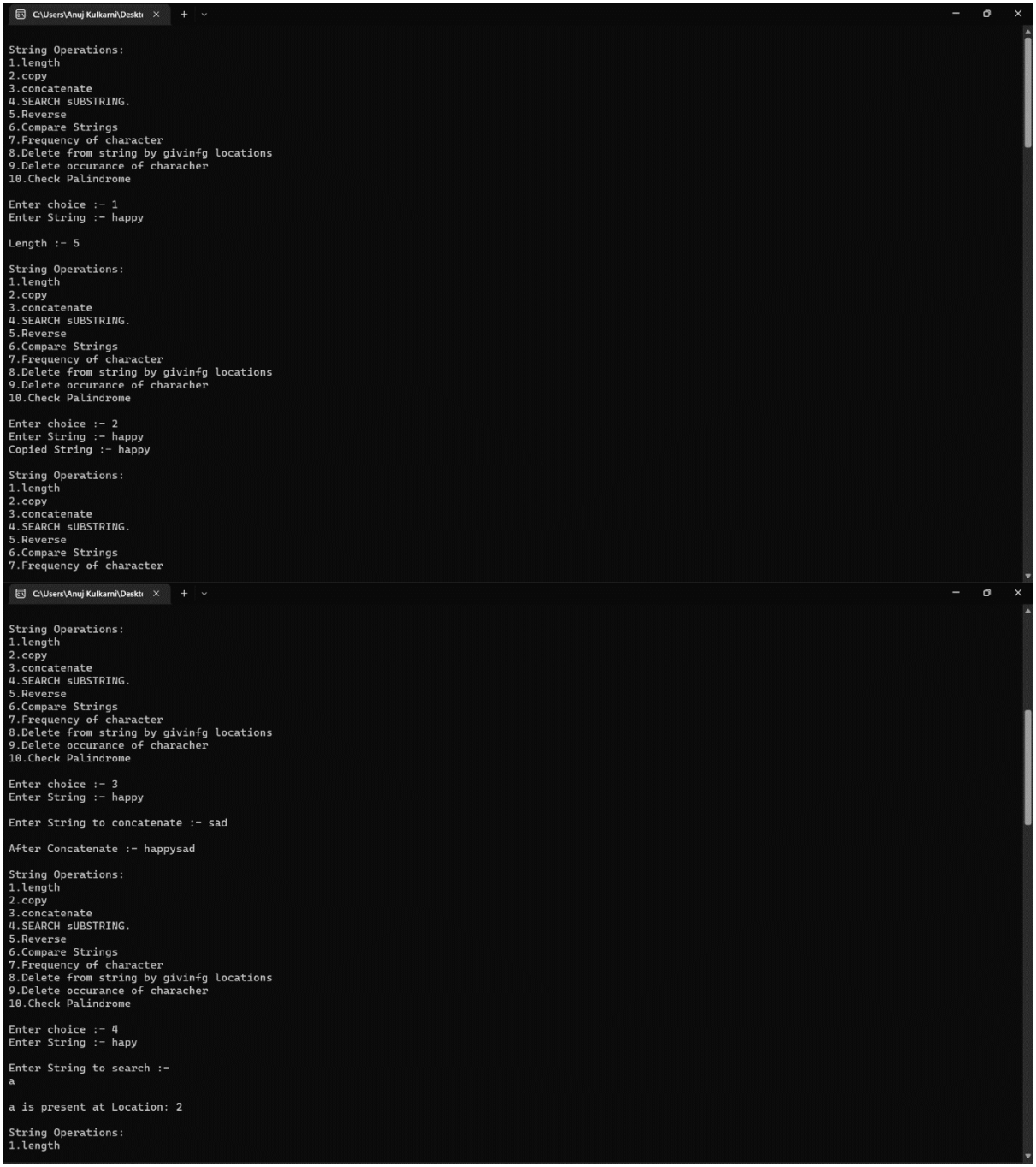
```
                a[i]=a[i+l];
                i++;
            }
        }
        void delChar(char *a,char ch)
        {
            for(int i=0;a[i]!='\0';i++)
            {
                if(a[i]==ch)
                {
                    int j=i;
                    while(a[j]!='\0')
                    {
                        a[j]=a[j+1];
                        j++;
                    }
                    a[j]='\0';
                }
            }
        }
    bool palindrome(char *a)
        {
            char rev[50];
            copy(a,rev);
            reverse(rev);
            int len=length(a);
            int count=0;
            for(int i=0;a[i]!='\0';i++)
            {
                if(a[i]==rev[i])
                count++;
            }
            if(count==len)
                return true;
            else
                return false;
        }
};
int main()
{
        char str[50],str2[50],ch;
        String s1;
```

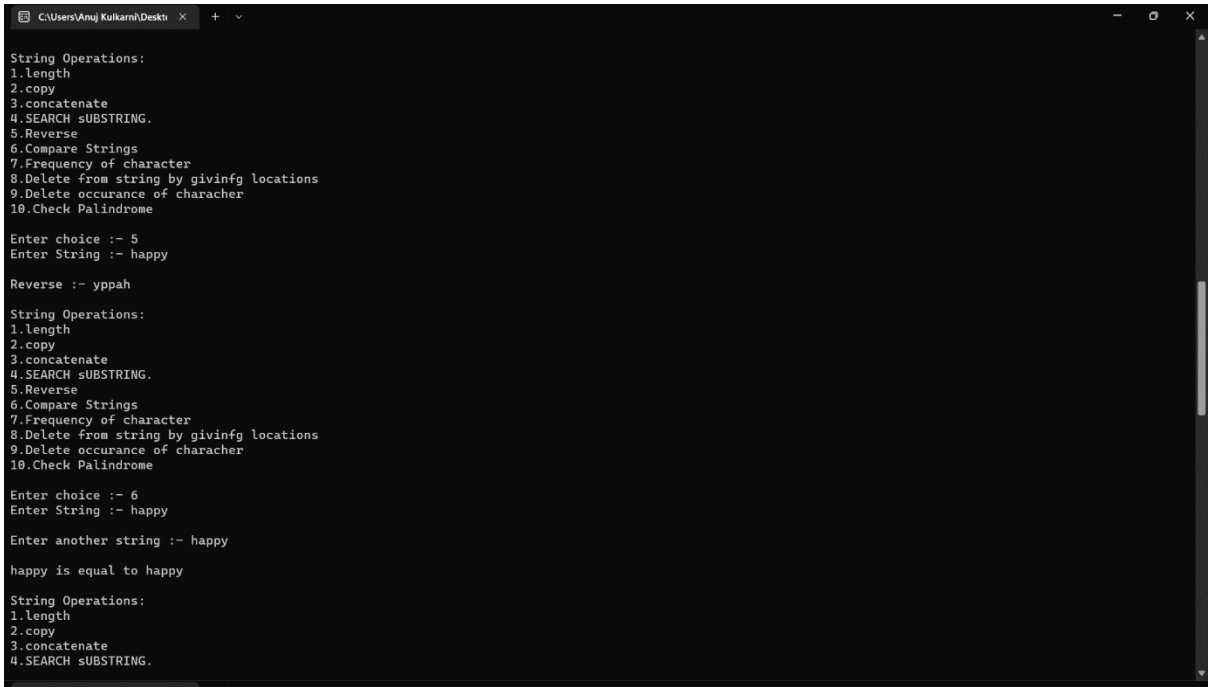
```
        int choice,start,len;
        bool flag;
        do
        {
        cout<<"\nString Operations:\n1.length\n2.copy\n3.concatenate\n4.SEARCH
sUBSTRING.\n5.Reverse"
        <<"\n6.Compare Strings\n7.Frequency of character\n8.Delete from string by givinfg
locations"
        <<"\n9.Delete occurance of characher\n10.Check Palindrome\n\nEnter choice :- ";
        cin>>choice;
        switch(choice)
        {
        case 1:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"\nLength :- "<<s1.length(str)<<endl;
        break;
        case 2:
        cout<<"Enter String :- ";
        cin>>str;
        s1.copy(str,str2);
        cout<<"Copied String :- "<<str2<<endl;
        break;
        case 3:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"\nEnter String to concatenate :- ";
        cin>>str2;
        s1.concat(str,str2);
        cout<<"\nAfter Concatenate :- "<<str<<endl;
        break;
        case 4:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"\nEnter String to search :- "<<endl;
        cin>>str2;
        s1.search(str,str2);
        cout<<"\n";
        break;
        case 5:
        cout<<"Enter String :- ";
        cin>>str;
```

```
        s1.reverse(str);
        cout<<"\nReverse :- "<<str<<endl;
        break;
        case 6:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"\nEnter another string :- ";
        cin>>str2;
        s1.compare(str,str2);
        break;
        case 7:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"\nEnter char to find freq :- ";
        cin>>ch;
        cout<<"\nFrequency of "<<ch<<" is :- "<<s1.frequency(str,ch)<<endl;
        break;
        case 8:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"Enter start and length to delete chars from string :- ";
        cin>>start>>len;
        s1.deleteS(str,start,len);
        cout<<"\nAfter Deleting :- "<<str;
        break;
        case 9:
        cout<<"Enter String :- ";
        cin>>str;
        cout<<"Enter chracter to delete its occurences :- ";
        cin>>ch;
        s1.delChar(str,ch);
        cout<<"After Deletion :- "<<str<<endl;
        break;
        case 10:
        cout<<"Enter String :- ";
        cin>>str;
        if(s1.palindrome(str))
        cout<<endl<<str<<" is palindrome.";
        else
        cout<<endl<<str<<" is not palindrome.";
        break;
}
```

```
}
while(choice!=0);
return 0;
}
```

Output :-





```
String Operations:
1.length
2.copy
3.concatenate
4.SEARCH sUBSTRING.
5.Reverse
6.Compare Strings
7.Frequency of character
8.Delete from string by givinfg locations
9.Delete occurance of characher
10.Check Palindrome

Enter choice :- 5
Enter String :- happy

Reverse :- yppah

String Operations:
1.length
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9.Delete occurance of characher
10.Check Palindrome

Enter choice :- 6
Enter String :- happy

Enter another string :- happy

happy is equal to happy

String Operations:
1.length
2.copy
3.concatenate
4.SEARCH sUBSTRING.
```
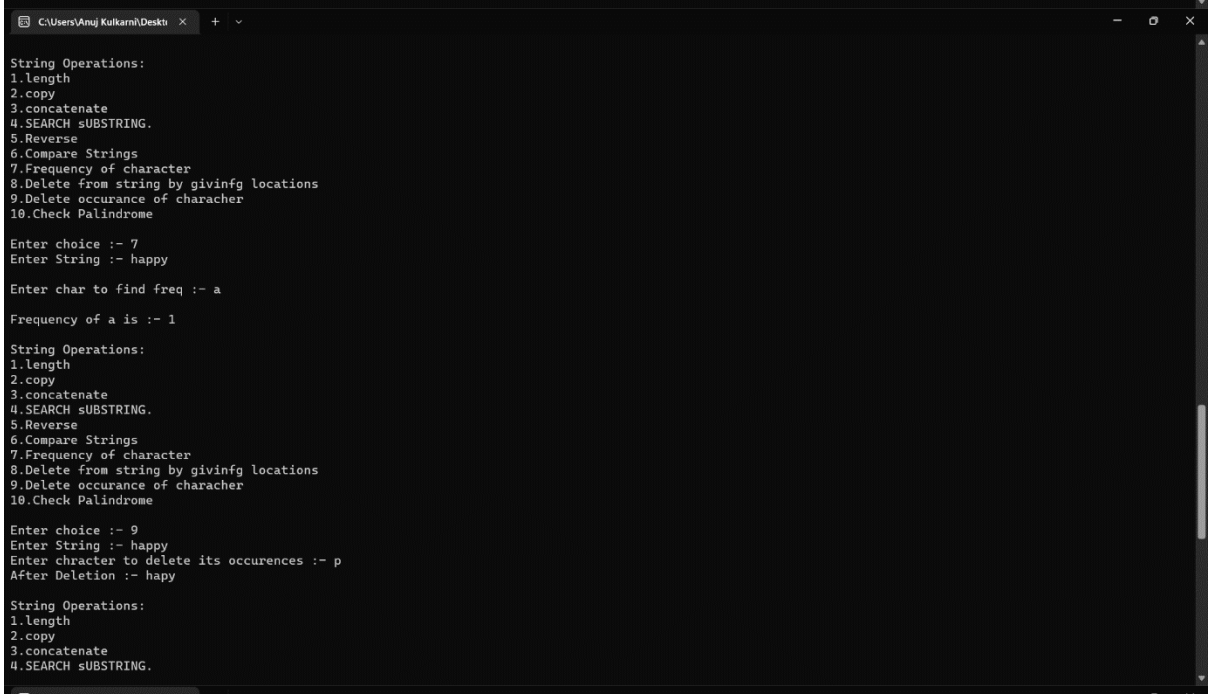
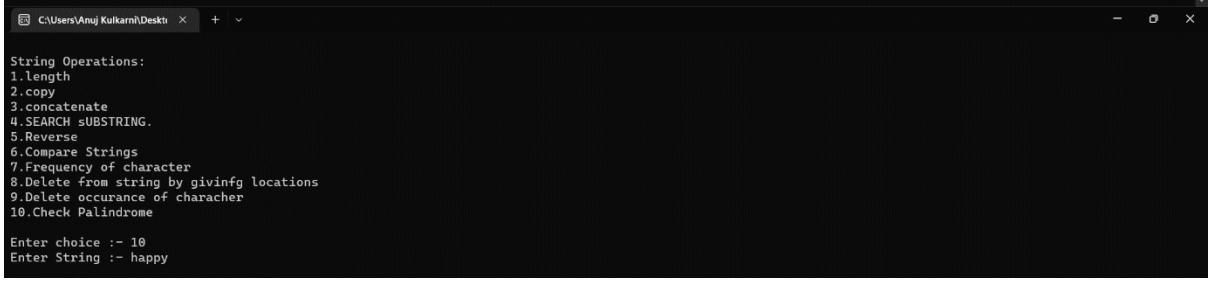



```
String Operations:
1.length
2.copy
3.concatenate
4.SEARCH sUBSTRING.
5.Reverse
6.Compare Strings
7.Frequency of character
8.Delete from string by givinfg locations
9.Delete occurance of characher
10.Check Palindrome

Enter choice :- 7
Enter String :- happy

Enter char to find freq :- a

Frequency of a is :- 1

String Operations:
1.length
2.copy
3.concatenate
4.SEARCH sUBSTRING.
5.Reverse
6.Compare Strings
7.Frequency of character
8.Delete from string by givinfg locations
9.Delete occurance of characher
10.Check Palindrome

Enter choice :- 9
Enter String :- happy
Enter chracter to delete its occurences :- p
After Deletion :- hapy

String Operations:
1.length
2.copy
3.concatenate
4.SEARCH sUBSTRING.
```



```
String Operations:
1.length
2.copy
3.concatenate
4.SEARCH sUBSTRING.
5.Reverse
6.Compare Strings
7.Frequency of character
8.Delete from string by givinfg locations
9.Delete occurance of characher
10.Check Palindrome

Enter choice :- 10
Enter String :- happy
```