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1) Copy and run the program below:

```
#include <stdio.h>
#include <string.h>
#include <iostream>

using namespace std;

int main ()
{
  char str1[]="Hello World";
  char str2[40];

  strcpy (str2,str1);
  cout << str2;
  return 0;
}
```

2) Reference to the sample code above. Create a program for each question below:

1 strcpy(str1, str2);

Copies string str2 into string str1.

```
  str1[40]="My name is George";
  str2[40]= "I am a business man";
```

Output:

```
I am a business man
```

2 strcat(str1, str2);

Concatenates string str2 onto the end of string str1.

```
  str1[40]="My name is George";
  str2[40]= "I am a business man";
```

Output 1:

```
My name is George. I am a business man.
```

Output 2:

```
I am a business man. My name is George.
```

```
If str3[40]= "I live in California";

Modify code so will display:
```

Output 3:

```
I live in California. I am a business man. My name is George.
```

3 strlen(str1);

Returns the length of string str1.

4 strcmp(str1, str2);

Returns 0 if str1 and str2 are the same; less than 0 if str1<str2; greater than 0 if str1>str2.

5 strchr(str1, ch);

Returns a pointer to the first occurrence of character ch in string str1.

```
char str1[40]="My name is George";
char str2[40]= "I am a business man";
char pick = 'G';
char* ch = strchr(str1, pick);

cout << ch;
```

6 strstr(str1, str2);

Returns a pointer to the first occurrence of string str2 in string str1.

```
str1[]="My name is George";
str2[]= "name";

cout << strchr(str1,str2);
```

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Functions

Convert from strings

stoi
: Convert string to integer (function template)

stol
: Convert string to long int (function template)

stof
: Convert string to float (function template)

stod
: Convert string to double (function template)

```
#include <iostream>
#include <string>
using namespace std;

int main()
{
    string str1 = "45";
    string str2 = "3.14159";
    string str3 = "31337 test";

    int myint1 = stoi(str1);
    int myint2 = stoi(str2);
    int myint3 = stoi(str3);

    cout << "stoi(\"" << str1 << "\") is "
         << myint1 << '\n';
    cout << "stoi(\"" << str2 << "\") is "
         << myint2 << '\n';
    cout << "stoi(\"" << str3 << "\") is "
         << myint3 << '\n';

    return 0;
}
```

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Convert to strings

to_string

Convert numerical value to string (function)

Operators Defined for `string`:

- *Assign* =
```
string str1;
string str2;
...
str1 = str2; // the contents of str2 is copied to str1
```
- *Append* +=
```
string str1( "abc" );
string str2( "def" );
...
str1 += str2; // str1 = "abcdef" now
```
- *Indexing* []
```
string s( "def" );
char c = s[2]; // c = 'f' now
s[0] = s[1]; // s = "eef" now
```
- *Concatenate* +
```
string str1( "abc" );
string str2( "def" );
string str3;
...
str3 = str1 + str2; // str3 = "abcdef" now
```
- *Equality* ==
```
string str1( "abc" );
string str2( "def" );
string str3( "abc" );
...
bool flag1 = ( str1 == str2 ); // flag1 = false now
bool flag2 = ( str1 == str3 ); // flag2 = true now
```
- *Inequality* !=
  - the inverse of equality
- *Comparison* <, >, <=, >=
  - performs case-insensitive comparison
```
string str1 = "abc";
string str2 = "ABC";
string str3 = "abcdef";
...
bool flag1 = ( str1 < str2 ); // flag1 = false now
bool flag2 = ( str2 < str3 ); // flag2 = true now
```

- **Input Functions**
- **1. getline()** :- This function is used to **store a stream of characters** as entered by the user in the object memory.
- **2. push_back()** :- This function is used to **input** a character at the **end** of the string.
- **3. pop_back()** :- This function is used to **delete the last character** from the string.

```
// C++ code to demonstrate the working of
// getline(), push_back() and pop_back()

#include<iostream>
#include<string> // for string class
using namespace std;

int main()
{
    // Declaring string
    string str;

    // Taking string input using getline()
    // "WhoisWho" in givin output
    getline(cin,str);

    // Displaying string
    cout << "The initial string is : ";
    cout << str << endl;

    // Using push_back() to insert a character
    // at end
    // pushes 's' in this case
    str.push_back('s');

    // Displaying string
    cout << "The string after push_back operation is : ";
    cout << str << endl;

    // Using pop_back() to delete a character
    // from end
    // pops 's' in this case
    str.pop_back();

    // Displaying string
    cout << "The string after pop_back operation is : ";
    cout << str << endl;

    return 0;

}
```