1. Str.h

```
#ifndef Str_h
#define Str_h
class Str {
private:
    char *str; //what's in the string
    int len; //length of the string

public:
    /* constructor */
    Str(int leng); //Make a string with the length of leng.
    Str(const char *neyong); //Make a string and initialize the string with neyong.

    /* destructor */
    ~Str();

    /* Operations with the string. */
    int length(void); //Return the length of the string.
    char *contents(void); //Return the content of the string.

    int compare(class Str& a); //strcmp with the content of a
    int compare(char *a); //strcmp with the content of a

    void operator=(class Str& a); //String <- a
    void operator=(char *a); //String <- a
};
#endif /* Str_h */
```

2. str.cpp

```cpp
#include "Str.h"
#include <cstdlib>
#include <string.h>
#include <iostream>
using namespace std;
/* constructor */
Str::Str(int leng) //Make a string with the length of leng.
{
    if (leng < 0) {
        cout << "Error: String length should not be negative." << endl;
        exit(1);
    }
    else {
        str = new char[leng+1];
        len = leng;
    }
}
Str::Str(const char *neyong) //Make a string and initialize the string with neyong.
{
    len = strlen(neyong);
    str = new char[len+1];
    strcpy(str, neyong);
}
/* destructor */
Str::~Str()
{
    delete[] str;
}
/* Return the length of the string. */
int Str::length(void)
{
    return len;
}
/* Return the content of the string. */
char* Str::contents(void)
{
    return str;
}
```

```
/* strcmp operations */
/* If str and a are identical, return 0. */
int Str::compare(class Str& a) // strcmp with the content of a
{
    return strcmp(str, a.contents());
}
int Str::compare(char *a) // strcmp with the content of a
{
    return strcmp(str, a);
}
/* str <- a */
void Str::operator=(class Str& a)
{
    strcpy((char*) str, a.contents()); //str <- a.contents()
    len = a.length();                  //len <- a.length()
}
/* str <- a */
void Str::operator=(char *a)
{
    strcpy((char*) str, a); //str <- a
    len = strlen(str);      //len <- strlen(str)
}
```

3. main.cpp

```
#include "Str.h"
#include <iostream>
using namespace std;
int main(void) {
    Str a("I'm a girl");
    cout << a.contents();

    a = "I'm a boy\n";
    cout << a.contents();

    cout << a.compare("I'm a a") << endl;

    return 0;
}
```

4. Makefile

```
cc = g++

target = a.out

objects = main.o str.o

cflags = -c -O2 -w

$(target) : $(objects)

        $(cc) -o $(target) $(objects)

.cpp.o :

        $(cc) $(cflags) -o $@ $<

$(objects) : Str.h

.PHONY : clean

clean :

        rm $(objects) $(target)
```