langage c++

le c++ non-objet (partie 2)

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Exercice 1 : La surcharge de fonction

Q1 : Ajoutez des sorties d'écran du type « vous êtes dans la somme de deux entiers » dans chacune des fonction

(voir code « surcharge.cpp »)

Q2 : Surchargez la fonction somme par la fonction qui fait la somme de deux chaines de caractères (en les concaténant

(voir code « surcharge.cpp »)

Q3 : Que se passe t'il lors des appels suivants :

```
somme(1, 3.14);
```

```
stag@formation-ldnr 02:43  ~/cpp/cpp$ g++ surcharge.cpp
surcharge.cpp: In function 'int main()':
surcharge.cpp:59:18: error: call of overloaded 'Somme(int,
double)' is ambiguous
     Somme(1, 3.14);
                  ^
surcharge.cpp:59:18: note: candidates are:
surcharge.cpp:12:5: note: int Somme(int, int)
 int Somme(int i, int j)
     ^
surcharge.cpp:20:8: note: double Somme(double, double)
 double Somme(double i, double j)
        ^
```

>> visiblement, le compilateur ne sait pas quelle fonction appeler car les deux paramètres passés lors de l'appel ne sont pas de même type.

Et lors de :

```
somme(4, "chaine");
```

>> là encore, le compilateur ne sait pas quelle version de la fonction appeler. Il tente d'abord de convertir « chaine » en entier. Ce n'est pas très efficace. Il essaye ensuite de convertir 4 en string, sans plus de succès

Exercice 2 : Paramètres par défaut

Voir code source

Exercice 3 : Anticiper la notion de classe

Q1 : Définissez la structure Fraction qui contient un numérateur et un dénominateur, tous deux entiers.

```
struct fraction
{
    double numerateur;
    double denominateur;
};
```

Q2 : Nous allons écrire quelques fonctions qui réalisent :

- la saisie
- l'affichage de fractions
- la multiplication de deux fractions
- La multiplication d'une fraction par un entier (entier à gauche ou à droite)

Vous pouvez voir ces fonctions dans le code source ci-joint.

Q3 : Essayer les opérations suivantes dans le main:

```
fraction F1, F2, F3;
cin >> F1;
cin >> F2;
cout << F1 << F2;
F3 = F1 * F2;
```

messages d'erreur :

```
anticiper_notion_de_classe.cpp: In function 'int main(int,
char**)':
anticiper_notion_de_classe.cpp:64:6: error: no match for
'operator>>' (operand types are 'std::istream {aka
```

```
std::basic_istream<char>}' and 'fraction')
  cin >> F1;
      ^
anticiper_notion_de_classe.cpp:64:6: note: candidates are:
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:120:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT,
_Traits>::operator>>(std::basic_istream<_CharT,
_Traits>::__istream_type& (*)(std::basic_istream<_CharT,
_Traits>::__istream_type&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__istream_type = std::basic_istream<char>]
       operator>>(__istream_type& (*__pf)(__istream_type&))
       ^
/usr/include/c++/4.9/istream:120:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_istream<char>::__istream_type& (*)
(std::basic_istream<char>::__istream_type&) {aka
std::basic_istream<char>& (*)(std::basic_istream<char>&)}'
/usr/include/c++/4.9/istream:124:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT,
_Traits>::operator>>(std::basic_istream<_CharT,
_Traits>::__ios_type& (*)(std::basic_istream<_CharT,
_Traits>::__ios_type&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__istream_type = std::basic_istream<char>;
std::basic_istream<_CharT, _Traits>::__ios_type =
std::basic_ios<char>]
       operator>>(__ios_type& (*__pf)(__ios_type&))
       ^
/usr/include/c++/4.9/istream:124:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_istream<char>::__ios_type& (*)
(std::basic_istream<char>::__ios_type&) {aka std::basic_ios<char>&
(*)(std::basic_ios<char>&)}'
/usr/include/c++/4.9/istream:131:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(std::ios_base& (*)
(std::ios_base&)) [with _CharT = char; _Traits =
```

```
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__istream_type = std::basic_istream<char>]
       operator>>(ios_base& (*__pf)(ios_base&))
       ^
/usr/include/c++/4.9/istream:131:7: note:   no known conversion
for argument 1 from 'fraction' to 'std::ios_base& (*)
(std::ios_base&)'
/usr/include/c++/4.9/istream:168:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(bool&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(bool& __n)
       ^
/usr/include/c++/4.9/istream:168:7: note:   no known conversion
for argument 1 from 'fraction' to 'bool&'
/usr/include/c++/4.9/istream:172:7: note:
std::basic_istream<_CharT, _Traits>& std::basic_istream<_CharT,
_Traits>::operator>>(short int&) [with _CharT = char; _Traits =
std::char_traits<char>]
       operator>>(short& __n);
       ^
/usr/include/c++/4.9/istream:172:7: note:   no known conversion
for argument 1 from 'fraction' to 'short int&'
/usr/include/c++/4.9/istream:175:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(short unsigned
int&) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(unsigned short& __n)
       ^
/usr/include/c++/4.9/istream:175:7: note:   no known conversion
for argument 1 from 'fraction' to 'short unsigned int&'
/usr/include/c++/4.9/istream:179:7: note:
std::basic_istream<_CharT, _Traits>& std::basic_istream<_CharT,
_Traits>::operator>>(int&) [with _CharT = char; _Traits =
std::char_traits<char>]
       operator>>(int& __n);
       ^
```

```
/usr/include/c++/4.9/istream:179:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘int&’

/usr/include/c++/4.9/istream:182:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(unsigned int&)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(unsigned int& __n)

       ^

/usr/include/c++/4.9/istream:182:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘unsigned int&’

/usr/include/c++/4.9/istream:186:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long int&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(long& __n)

       ^

/usr/include/c++/4.9/istream:186:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long int&’

/usr/include/c++/4.9/istream:190:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long unsigned
int&) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(unsigned long& __n)

       ^

/usr/include/c++/4.9/istream:190:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long unsigned int&’

/usr/include/c++/4.9/istream:195:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long long int&)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(long long& __n)

       ^

/usr/include/c++/4.9/istream:195:7: note:   no known conversion
```

```
for argument 1 from ‘fraction’ to ‘long long int&’

/usr/include/c++/4.9/istream:199:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long long unsigned
int&) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(unsigned long long& __n)

       ^

/usr/include/c++/4.9/istream:199:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long long unsigned int&’

/usr/include/c++/4.9/istream:214:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(float&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(float& __f)

       ^

/usr/include/c++/4.9/istream:214:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘float&’

/usr/include/c++/4.9/istream:218:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(double&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(double& __f)

       ^

/usr/include/c++/4.9/istream:218:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘double&’

/usr/include/c++/4.9/istream:222:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long double&)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(long double& __f)

       ^

/usr/include/c++/4.9/istream:222:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long double&’
```

```
/usr/include/c++/4.9/istream:235:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(void*&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(void*& __p)
       ^
/usr/include/c++/4.9/istream:235:7: note:   no known conversion
for argument 1 from 'fraction' to 'void*&'
/usr/include/c++/4.9/istream:259:7: note:
std::basic_istream<_CharT, _Traits>& std::basic_istream<_CharT,
_Traits>::operator>>(std::basic_istream<_CharT,
_Traits>::__streambuf_type*) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__streambuf_type = std::basic_streambuf<char>]
       operator>>(__streambuf_type* __sb);
       ^
/usr/include/c++/4.9/istream:259:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_istream<char>::__streambuf_type* {aka
std::basic_streambuf<char>*}'
In file included from /usr/include/c++/4.9/string:53:0,
                 from /usr/include/c+
+/4.9/bits/locale_classes.h:40,
                 from /usr/include/c++/4.9/bits/ios_base.h:41,
                 from /usr/include/c++/4.9/ios:42,
                 from /usr/include/c++/4.9/ostream:38,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/basic_string.tcc:996:5: note:
template<class _CharT, class _Traits, class _Alloc>
std::basic_istream<_CharT, _Traits>&
std::operator>>(std::basic_istream<_CharT, _Traits>&,
std::basic_string<_CharT, _Traits, _Alloc>&)
     operator>>(basic_istream<_CharT, _Traits>& __in,
     ^
/usr/include/c++/4.9/bits/basic_string.tcc:996:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   'fraction' is not
```

```
derived from 'std::basic_string<_CharT, _Traits, _Alloc>'
  cin >> F1;
         ^
In file included from /usr/include/c++/4.9/istream:879:0,
                 from /usr/include/c++/4.9/iostream:40,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/istream.tcc:955:5: note: template<class
_CharT2, class _Traits2> std::basic_istream<_CharT, _Traits>&
std::operator>>(std::basic_istream<_CharT, _Traits>&, _CharT2*)
     operator>>(basic_istream<_CharT, _Traits>& __in, _CharT* __s)
     ^
/usr/include/c++/4.9/bits/istream.tcc:955:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   mismatched types
'_CharT2*' and 'fraction'
  cin >> F1;
         ^
In file included from /usr/include/c++/4.9/istream:879:0,
                 from /usr/include/c++/4.9/iostream:40,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/istream.tcc:923:5: note: template<class
_CharT, class _Traits> std::basic_istream<_CharT, _Traits>&
std::operator>>(std::basic_istream<_CharT, _Traits>&, _CharT&)
     operator>>(basic_istream<_CharT, _Traits>& __in, _CharT& __c)
     ^
/usr/include/c++/4.9/bits/istream.tcc:923:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   deduced conflicting
types for parameter '_CharT' ('char' and 'fraction')
  cin >> F1;
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:727:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, unsigned
char&)
```

```
     operator>>(basic_istream<char, _Traits>& __in, unsigned char&
__c)
     ^
/usr/include/c++/4.9/istream:727:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   cannot convert 'F1'
(type 'fraction') to type 'unsigned char&'
  cin >> F1;
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:732:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, signed char&)
     operator>>(basic_istream<char, _Traits>& __in, signed char&
__c)
     ^
/usr/include/c++/4.9/istream:732:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   cannot convert 'F1'
(type 'fraction') to type 'signed char&'
  cin >> F1;
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:774:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, unsigned
char*)
     operator>>(basic_istream<char, _Traits>& __in, unsigned char*
__s)
     ^
/usr/include/c++/4.9/istream:774:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   cannot convert 'F1'
(type 'fraction') to type 'unsigned char*'
  cin >> F1;
         ^
```

```
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:779:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, signed char*)
     operator>>(basic_istream<char, _Traits>& __in, signed char*
__s)
     ^
/usr/include/c++/4.9/istream:779:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:64:9: note:   cannot convert 'F1'
(type 'fraction') to type 'signed char*'
  cin >> F1;
         ^
anticiper_notion_de_classe.cpp:65:6: error: no match for
'operator>>' (operand types are 'std::istream {aka
std::basic_istream<char>}' and 'fraction')
  cin >> F2;
      ^
anticiper_notion_de_classe.cpp:65:6: note: candidates are:
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:120:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT,
_Traits>::operator>>(std::basic_istream<_CharT,
_Traits>::__istream_type& (*)(std::basic_istream<_CharT,
_Traits>::__istream_type&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__istream_type = std::basic_istream<char>]
       operator>>(__istream_type& (*__pf)(__istream_type&))
       ^
/usr/include/c++/4.9/istream:120:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_istream<char>::__istream_type& (*)
(std::basic_istream<char>::__istream_type&) {aka
std::basic_istream<char>& (*)(std::basic_istream<char>&)}'
/usr/include/c++/4.9/istream:124:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT,
```

```
_Traits>::operator>>(std::basic_istream<_CharT,
_Traits>::__ios_type& (*)(std::basic_istream<_CharT,
_Traits>::__ios_type&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__istream_type = std::basic_istream<char>;
std::basic_istream<_CharT, _Traits>::__ios_type =
std::basic_ios<char>]
       operator>>(__ios_type& (*__pf)(__ios_type&))
       ^
/usr/include/c++/4.9/istream:124:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_istream<char>::__ios_type& (*)
(std::basic_istream<char>::__ios_type&) {aka std::basic_ios<char>&
(*)(std::basic_ios<char>&)}'
/usr/include/c++/4.9/istream:131:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(std::ios_base& (*)
(std::ios_base&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__istream_type = std::basic_istream<char>]
       operator>>(ios_base& (*__pf)(ios_base&))
       ^
/usr/include/c++/4.9/istream:131:7: note:   no known conversion
for argument 1 from 'fraction' to 'std::ios_base& (*)
(std::ios_base&)'
/usr/include/c++/4.9/istream:168:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(bool&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(bool& __n)
       ^
/usr/include/c++/4.9/istream:168:7: note:   no known conversion
for argument 1 from 'fraction' to 'bool&'
/usr/include/c++/4.9/istream:172:7: note:
std::basic_istream<_CharT, _Traits>& std::basic_istream<_CharT,
_Traits>::operator>>(short int&) [with _CharT = char; _Traits =
std::char_traits<char>]
       operator>>(short& __n);
       ^
/usr/include/c++/4.9/istream:172:7: note:   no known conversion
```

```
for argument 1 from ‘fraction’ to ‘short int&’

/usr/include/c++/4.9/istream:175:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(short unsigned
int&) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(unsigned short& __n)

       ^

/usr/include/c++/4.9/istream:175:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘short unsigned int&’

/usr/include/c++/4.9/istream:179:7: note:
std::basic_istream<_CharT, _Traits>& std::basic_istream<_CharT,
_Traits>::operator>>(int&) [with _CharT = char; _Traits =
std::char_traits<char>]

       operator>>(int& __n);

       ^

/usr/include/c++/4.9/istream:179:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘int&’

/usr/include/c++/4.9/istream:182:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(unsigned int&)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(unsigned int& __n)

       ^

/usr/include/c++/4.9/istream:182:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘unsigned int&’

/usr/include/c++/4.9/istream:186:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long int&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]

       operator>>(long& __n)

       ^

/usr/include/c++/4.9/istream:186:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long int&’

/usr/include/c++/4.9/istream:190:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
```

```
std::basic_istream<_CharT, _Traits>::operator>>(long unsigned
int&) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(unsigned long& __n)
       ^
/usr/include/c++/4.9/istream:190:7: note:   no known conversion
for argument 1 from 'fraction' to 'long unsigned int&'
/usr/include/c++/4.9/istream:195:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long long int&)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(long long& __n)
       ^
/usr/include/c++/4.9/istream:195:7: note:   no known conversion
for argument 1 from 'fraction' to 'long long int&'
/usr/include/c++/4.9/istream:199:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long long unsigned
int&) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(unsigned long long& __n)
       ^
/usr/include/c++/4.9/istream:199:7: note:   no known conversion
for argument 1 from 'fraction' to 'long long unsigned int&'
/usr/include/c++/4.9/istream:214:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(float&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(float& __f)
       ^
/usr/include/c++/4.9/istream:214:7: note:   no known conversion
for argument 1 from 'fraction' to 'float&'
/usr/include/c++/4.9/istream:218:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(double&) [with
```

```
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(double& __f)
       ^
/usr/include/c++/4.9/istream:218:7: note:   no known conversion
for argument 1 from 'fraction' to 'double&'
/usr/include/c++/4.9/istream:222:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(long double&)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(long double& __f)
       ^
/usr/include/c++/4.9/istream:222:7: note:   no known conversion
for argument 1 from 'fraction' to 'long double&'
/usr/include/c++/4.9/istream:235:7: note:
std::basic_istream<_CharT, _Traits>::__istream_type&
std::basic_istream<_CharT, _Traits>::operator>>(void*&) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_istream<_CharT, _Traits>::__istream_type =
std::basic_istream<char>]
       operator>>(void*& __p)
       ^
/usr/include/c++/4.9/istream:235:7: note:   no known conversion
for argument 1 from 'fraction' to 'void*&'
/usr/include/c++/4.9/istream:259:7: note:
std::basic_istream<_CharT, _Traits>& std::basic_istream<_CharT,
_Traits>::operator>>(std::basic_istream<_CharT,
_Traits>::__streambuf_type*) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_istream<_CharT,
_Traits>::__streambuf_type = std::basic_streambuf<char>]
       operator>>(__streambuf_type* __sb);
       ^
/usr/include/c++/4.9/istream:259:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_istream<char>::__streambuf_type* {aka
std::basic_streambuf<char>*}'
In file included from /usr/include/c++/4.9/string:53:0,
                 from /usr/include/c+
```

```
+/4.9/bits/locale_classes.h:40,
                 from /usr/include/c++/4.9/bits/ios_base.h:41,
                 from /usr/include/c++/4.9/ios:42,
                 from /usr/include/c++/4.9/ostream:38,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/basic_string.tcc:996:5: note:
template<class _CharT, class _Traits, class _Alloc>
std::basic_istream<_CharT, _Traits>&
std::operator>>(std::basic_istream<_CharT, _Traits>&,
std::basic_string<_CharT, _Traits, _Alloc>&)
     operator>>(basic_istream<_CharT, _Traits>& __in,
     ^
/usr/include/c++/4.9/bits/basic_string.tcc:996:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   'fraction' is not
derived from 'std::basic_string<_CharT, _Traits, _Alloc>'
  cin >> F2;
         ^
In file included from /usr/include/c++/4.9/istream:879:0,
                 from /usr/include/c++/4.9/iostream:40,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/istream.tcc:955:5: note: template<class
_CharT2, class _Traits2> std::basic_istream<_CharT, _Traits>&
std::operator>>(std::basic_istream<_CharT, _Traits>&, _CharT2*)
     operator>>(basic_istream<_CharT, _Traits>& __in, _CharT* __s)
     ^
/usr/include/c++/4.9/bits/istream.tcc:955:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   mismatched types
'_CharT2*' and 'fraction'
  cin >> F2;
         ^
In file included from /usr/include/c++/4.9/istream:879:0,
                 from /usr/include/c++/4.9/iostream:40,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/istream.tcc:923:5: note: template<class
```

```
_CharT, class _Traits> std::basic_istream<_CharT, _Traits>&
std::operator>>(std::basic_istream<_CharT, _Traits>&, _CharT&)
     operator>>(basic_istream<_CharT, _Traits>& __in, _CharT& __c)
     ^
/usr/include/c++/4.9/bits/istream.tcc:923:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   deduced conflicting
types for parameter '_CharT' ('char' and 'fraction')
  cin >> F2;
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:727:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, unsigned
char&)
     operator>>(basic_istream<char, _Traits>& __in, unsigned char&
__c)
     ^
/usr/include/c++/4.9/istream:727:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   cannot convert 'F2'
(type 'fraction') to type 'unsigned char&'
  cin >> F2;
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:732:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, signed char&)
     operator>>(basic_istream<char, _Traits>& __in, signed char&
__c)
     ^
/usr/include/c++/4.9/istream:732:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   cannot convert 'F2'
(type 'fraction') to type 'signed char&'
  cin >> F2;
```

```
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:774:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, unsigned
char*)
     operator>>(basic_istream<char, _Traits>& __in, unsigned char*
__s)
     ^
/usr/include/c++/4.9/istream:774:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   cannot convert 'F2'
(type 'fraction') to type 'unsigned char*'
  cin >> F2;
         ^
In file included from /usr/include/c++/4.9/iostream:40:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/istream:779:5: note: template<class _Traits>
std::basic_istream<char, _Traits>&
std::operator>>(std::basic_istream<char, _Traits>&, signed char*)
     operator>>(basic_istream<char, _Traits>& __in, signed char*
__s)
     ^
/usr/include/c++/4.9/istream:779:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:65:9: note:   cannot convert 'F2'
(type 'fraction') to type 'signed char*'
  cin >> F2;
         ^
anticiper_notion_de_classe.cpp:66:7: error: no match for
'operator<<' (operand types are 'std::ostream {aka
std::basic_ostream<char>}' and 'fraction')
  cout << F1 << F2;
       ^
anticiper_notion_de_classe.cpp:66:7: note: candidates are:
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
```

```
/usr/include/c++/4.9/ostream:108:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT,
_Traits>::operator<<(std::basic_ostream<_CharT,
_Traits>::__ostream_type& (*)(std::basic_ostream<_CharT,
_Traits>::__ostream_type&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_ostream<_CharT,
_Traits>::__ostream_type = std::basic_ostream<char>]
       operator<<(__ostream_type& (*__pf)(__ostream_type&))
       ^

/usr/include/c++/4.9/ostream:108:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_ostream<char>::__ostream_type& (*)
(std::basic_ostream<char>::__ostream_type&) {aka
std::basic_ostream<char>& (*)(std::basic_ostream<char>&)}'
/usr/include/c++/4.9/ostream:117:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT,
_Traits>::operator<<(std::basic_ostream<_CharT,
_Traits>::__ios_type& (*)(std::basic_ostream<_CharT,
_Traits>::__ios_type&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_ostream<_CharT,
_Traits>::__ostream_type = std::basic_ostream<char>;
std::basic_ostream<_CharT, _Traits>::__ios_type =
std::basic_ios<char>]
       operator<<(__ios_type& (*__pf)(__ios_type&))
       ^

/usr/include/c++/4.9/ostream:117:7: note:   no known conversion
for argument 1 from 'fraction' to
'std::basic_ostream<char>::__ios_type& (*)
(std::basic_ostream<char>::__ios_type&) {aka std::basic_ios<char>&
(*)(std::basic_ios<char>&)}'
/usr/include/c++/4.9/ostream:127:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(std::ios_base& (*)
(std::ios_base&)) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_ostream<_CharT,
_Traits>::__ostream_type = std::basic_ostream<char>]
       operator<<(ios_base& (*__pf) (ios_base&))
       ^

/usr/include/c++/4.9/ostream:127:7: note:   no known conversion
for argument 1 from 'fraction' to 'std::ios_base& (*)
(std::ios_base&)'
```

```
/usr/include/c++/4.9/ostream:166:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(long int) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(long __n)
       ^
/usr/include/c++/4.9/ostream:166:7: note:   no known conversion
for argument 1 from 'fraction' to 'long int'
/usr/include/c++/4.9/ostream:170:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(long unsigned int)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(unsigned long __n)
       ^
/usr/include/c++/4.9/ostream:170:7: note:   no known conversion
for argument 1 from 'fraction' to 'long unsigned int'
/usr/include/c++/4.9/ostream:174:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(bool) [with _CharT
= char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(bool __n)
       ^
/usr/include/c++/4.9/ostream:174:7: note:   no known conversion
for argument 1 from 'fraction' to 'bool'
In file included from /usr/include/c++/4.9/ostream:609:0,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/ostream.tcc:91:5: note:
std::basic_ostream<_CharT, _Traits>& std::basic_ostream<_CharT,
_Traits>::operator<<(short int) [with _CharT = char; _Traits =
std::char_traits<char>]
     basic_ostream<_CharT, _Traits>::
     ^
/usr/include/c++/4.9/bits/ostream.tcc:91:5: note:   no known
conversion for argument 1 from 'fraction' to 'short int'
```

```
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:181:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(short unsigned
int) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(unsigned short __n)
       ^
/usr/include/c++/4.9/ostream:181:7: note:   no known conversion
for argument 1 from 'fraction' to 'short unsigned int'
In file included from /usr/include/c++/4.9/ostream:609:0,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/ostream.tcc:105:5: note:
std::basic_ostream<_CharT, _Traits>& std::basic_ostream<_CharT,
_Traits>::operator<<(int) [with _CharT = char; _Traits =
std::char_traits<char>]
     basic_ostream<_CharT, _Traits>::
     ^
/usr/include/c++/4.9/bits/ostream.tcc:105:5: note:   no known
conversion for argument 1 from 'fraction' to 'int'
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:192:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(unsigned int)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(unsigned int __n)
       ^
/usr/include/c++/4.9/ostream:192:7: note:   no known conversion
for argument 1 from 'fraction' to 'unsigned int'
/usr/include/c++/4.9/ostream:201:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(long long int)
[with _CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
```

```
std::basic_ostream<char>]
       operator<<(long long __n)
       ^
/usr/include/c++/4.9/ostream:201:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long long int’
/usr/include/c++/4.9/ostream:205:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(long long unsigned
int) [with _CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(unsigned long long __n)
       ^
/usr/include/c++/4.9/ostream:205:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long long unsigned int’
/usr/include/c++/4.9/ostream:220:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(double) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(double __f)
       ^
/usr/include/c++/4.9/ostream:220:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘double’
/usr/include/c++/4.9/ostream:224:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(float) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(float __f)
       ^
/usr/include/c++/4.9/ostream:224:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘float’
/usr/include/c++/4.9/ostream:232:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(long double) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
```

```
       operator<<(long double __f)
       ^
/usr/include/c++/4.9/ostream:232:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘long double’
/usr/include/c++/4.9/ostream:245:7: note:
std::basic_ostream<_CharT, _Traits>::__ostream_type&
std::basic_ostream<_CharT, _Traits>::operator<<(const void*) [with
_CharT = char; _Traits = std::char_traits<char>;
std::basic_ostream<_CharT, _Traits>::__ostream_type =
std::basic_ostream<char>]
       operator<<(const void* __p)
       ^
/usr/include/c++/4.9/ostream:245:7: note:   no known conversion
for argument 1 from ‘fraction’ to ‘const void*’
In file included from /usr/include/c++/4.9/ostream:609:0,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/ostream.tcc:119:5: note:
std::basic_ostream<_CharT, _Traits>& std::basic_ostream<_CharT,
_Traits>::operator<<(std::basic_ostream<_CharT,
_Traits>::__streambuf_type*) [with _CharT = char; _Traits =
std::char_traits<char>; std::basic_ostream<_CharT,
_Traits>::__streambuf_type = std::basic_streambuf<char>]
     basic_ostream<_CharT, _Traits>::
     ^
/usr/include/c++/4.9/bits/ostream.tcc:119:5: note:   no known
conversion for argument 1 from ‘fraction’ to
‘std::basic_ostream<char>::__streambuf_type* {aka
std::basic_streambuf<char>*}’
In file included from /usr/include/c++/4.9/string:52:0,
                 from /usr/include/c+
+/4.9/bits/locale_classes.h:40,
                 from /usr/include/c++/4.9/bits/ios_base.h:41,
                 from /usr/include/c++/4.9/ios:42,
                 from /usr/include/c++/4.9/ostream:38,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/basic_string.h:2772:5: note:
template<class _CharT, class _Traits, class _Alloc>
```

```
std::basic_ostream<_CharT, _Traits>&
std::operator<<(std::basic_ostream<_CharT, _Traits>&, const
std::basic_string<_CharT, _Traits, _Alloc>&)
     operator<<(basic_ostream<_CharT, _Traits>& __os,
     ^
/usr/include/c++/4.9/bits/basic_string.h:2772:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   'fraction' is not
derived from 'const std::basic_string<_CharT, _Traits, _Alloc>'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:471:5: note: template<class _CharT,
class _Traits> std::basic_ostream<_CharT, _Traits>&
std::operator<<(std::basic_ostream<_CharT, _Traits>&, _CharT)
     operator<<(basic_ostream<_CharT, _Traits>& __out, _CharT __c)
     ^
/usr/include/c++/4.9/ostream:471:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   deduced conflicting
types for parameter '_CharT' ('char' and 'fraction')
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:476:5: note: template<class _CharT,
class _Traits> std::basic_ostream<_CharT, _Traits>&
std::operator<<(std::basic_ostream<_CharT, _Traits>&, char)
     operator<<(basic_ostream<_CharT, _Traits>& __out, char __c)
     ^
/usr/include/c++/4.9/ostream:476:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'char'
  cout << F1 << F2;
          ^
```

```
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:482:5: note: template<class _Traits>
std::basic_ostream<char, _Traits>&
std::operator<<(std::basic_ostream<char, _Traits>&, char)
     operator<<(basic_ostream<char, _Traits>& __out, char __c)
     ^
/usr/include/c++/4.9/ostream:482:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'char'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:488:5: note: template<class _Traits>
std::basic_ostream<char, _Traits>&
std::operator<<(std::basic_ostream<char, _Traits>&, signed char)
     operator<<(basic_ostream<char, _Traits>& __out, signed char
__c)
     ^
/usr/include/c++/4.9/ostream:488:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'signed char'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:493:5: note: template<class _Traits>
std::basic_ostream<char, _Traits>&
std::operator<<(std::basic_ostream<char, _Traits>&, unsigned char)
     operator<<(basic_ostream<char, _Traits>& __out, unsigned char
__c)
     ^
/usr/include/c++/4.9/ostream:493:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
```

```
(type 'fraction') to type 'unsigned char'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:513:5: note: template<class _CharT,
class _Traits> std::basic_ostream<_CharT, _Traits>&
std::operator<<(std::basic_ostream<_CharT, _Traits>&, const
_CharT*)
     operator<<(basic_ostream<_CharT, _Traits>& __out, const
_CharT* __s)
     ^
/usr/include/c++/4.9/ostream:513:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   mismatched types
'const _CharT*' and 'fraction'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/ostream:609:0,
                 from /usr/include/c++/4.9/iostream:39,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/bits/ostream.tcc:321:5: note: template<class
_CharT, class _Traits> std::basic_ostream<_CharT, _Traits>&
std::operator<<(std::basic_ostream<_CharT, _Traits>&, const char*)
     operator<<(basic_ostream<_CharT, _Traits>& __out, const char*
__s)
     ^
/usr/include/c++/4.9/bits/ostream.tcc:321:5: note:   template
argument deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'const char*'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:530:5: note: template<class _Traits>
std::basic_ostream<char, _Traits>&
std::operator<<(std::basic_ostream<char, _Traits>&, const char*)
```

```
     operator<<(basic_ostream<char, _Traits>& __out, const char*
__s)
     ^
/usr/include/c++/4.9/ostream:530:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'const char*'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:543:5: note: template<class _Traits>
std::basic_ostream<char, _Traits>&
std::operator<<(std::basic_ostream<char, _Traits>&, const signed
char*)
     operator<<(basic_ostream<char, _Traits>& __out, const signed
char* __s)
     ^
/usr/include/c++/4.9/ostream:543:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'const signed char*'
  cout << F1 << F2;
          ^
In file included from /usr/include/c++/4.9/iostream:39:0,
                 from anticiper_notion_de_classe.cpp:1:
/usr/include/c++/4.9/ostream:548:5: note: template<class _Traits>
std::basic_ostream<char, _Traits>&
std::operator<<(std::basic_ostream<char, _Traits>&, const unsigned
char*)
     operator<<(basic_ostream<char, _Traits>& __out, const
unsigned char* __s)
     ^
/usr/include/c++/4.9/ostream:548:5: note:   template argument
deduction/substitution failed:
anticiper_notion_de_classe.cpp:66:10: note:   cannot convert 'F1'
(type 'fraction') to type 'const unsigned char*'
  cout << F1 << F2;
```

```
          ^
anticiper_notion_de_classe.cpp:67:2: error: 'F3' was not declared
in this scope
  F3 = F1 * F2;
  ^
anticiper_notion_de_classe.cpp:67:10: error: no match for
'operator*' (operand types are 'fraction' and 'fraction')
  F3 = F1 * F2;
          ^
```

Q4 : coder l'opération de multiplication

```
fraction operator*(const fraction &F1, const fraction &F2)
{
    // codage par vous de la multiplication
    fraction result;

    result.numerateur = F1.numerateur * F2.numerateur;
    result.denominateur = F1.denominateur * F2.denominateur;
    // pensez à mettre le return
    return result;
}
```

essayer maintenant dans le main :

```
F3 = F1 * F2;
```

que constatez-vous ?

Nous venons de définir le comportement de l'opérateur * lorqsu'il est placé entre deux structures fonction.