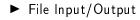
```
// Programming Techniques
Exercises Class # 8
```

Master Programme in Mathematical Finance 1st Semester 2018/2019 ISEG-UL

```
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```

Overview



Bibliography:

 Stroustrup, Bjarne, Programming Principles and Practice Using C++, Second Edition, Addison-Wesley, 2014.

File Input/Output

Reading and writing in files using fstream is the same as using cin and cout but now we have an object file associated.

```
# include <fstream>
ifstream ident ("xxx.txt");
ofstream ident ("xxx.txt",ios_ base::openmode);
```

openmode :

- out (by omission): If the file doesn't exist it creates one. If it exists, the file is deleted and a new one is created.
- ▶ app: If the file doesn't exist it creates one. If it exists, writes in the end of the file.

```
#include "std_lib_facilities.h"
int main()
{
    string data;
    ifstream in;
    in.open("file1.txt");
    if(in.fail()){
         cout << "Failed, file1.txt" << endl;</pre>
         return 1;
             }
    ofstream out;
    out.open("file2.txt");
    if(out.fail()){
         cout << "Failed_file2.txt"<<endl;</pre>
         return 1;
             }
    getline(in,data);
    out<<data<<endl;</pre>
    return 0:
```

```
#include "std_lib_facilities.h"
int main()
{
    string data;
    ifstream in;
    in.open("file1.txt");
    if(in.fail()){
         cout << "Failed_file1.txt"<<endl;</pre>
         return 1;
            }
 while(!in.eof()){
        double a;
         in>>a;
         cout <<a;
    }
}
```

1. Consider the file data.txt. Write a program to read the data and store the information in a vector.

2. Using the vector of the previous exercise, write a program to write in another file some descriptive statistics (number of observations, mean, standard deviation,...).