PROGRAMMING REQUIREMENT
Programming Requirement

- Implement a programming project and send it to me.
Programming Project

- Can be
  - a project you have already implemented,
  - a project you work on as part of your research, or
  - a project you implement for a course.

- Can be implemented in C++, C, C#, Java, Python, Matlab, Lua, ...
  - pretty much any other programming language
What to Submit?

Submit your program and a report. (A rule of thumb: the report should be 2 pages in length.)

The report should:

1. Explain what your program does.
2. Describe how your program works.
   - Describe the algorithm.
   - Describe main classes, functions, variables, etc.
What to Submit?

The report should:

3. Describe how to compile your program e.g.
   - $ gcc -03 lp-solver.cc
   - $ make all

4. Describe how to run and use your program.
   - $ ./lp-solver lp.data
   - Describe the format of input and output files.
   - Provide sample input files.
Requirements

- Size: medium to large *(not that important)*
  - A rule of thumb: if it takes a day or more to implement the project, then it’s fine.

- Your code should be well written! *(important)*
Code Quality

- The code should be well written!
  - Easy to understand
  - Easy to support and maintain
  - Error free
Coding Standards

- Have comments that explain what your code does.
  - Comments should explain the purpose of all functions and methods; what their parameters are, and what they return.
  - Explain the purpose of all important variables.
- Give meaningful and consistent names to classes, functions and variables.
Coding Standards

- Properly format your code:

```c
int nn=1;
for (int i =2; i <=n; i++)
{
    nn= nn*i;
}
```

Meaningless variable name not OK
Coding Standards

- Properly format your code:

```c
int nn=1;
for (int i =2; i <=n; i++)
{
    nn= nn*i;
}
```

Not OK: Non-matching styles for curly braces
Coding Standards

- Properly format your code:

```c
int nn=1;
for (int i =2; i <=n; i++)
{
    nn= nn*i;
}
```

Inconsistent spacing not OK
Coding Standards

- Properly format your code:

```c
int nn=1;
for (int i =2; i <=n; i++)
{
    nn = nn*i;
}
```

No indent

not OK
**Coding Standards**

- Properly format your code:

```c
int nFactorial = 1;
for (int i = 2; i <= n; i++)
{
    nFactorial = nFactorial * i;
}
```
Maintainable Code

- It should be easy to
  - change the functionality of your program,
  - slightly change the algorithm,
  - add new features

without rewriting the whole program.
Error Free

- Your program should
  - properly handle invalid arguments,
  - catch I/O exceptions,
  - have no memory leaks, have no buffer overflows, etc.

- It should never crash or hang!
Programming Requirement

- Implement a programming project and send it to me.

- Discuss the project with me at least two months before the deadline.

- Submit the project at least one month before the deadline.
  - Don’t wait till the last minute!
Summary

- Submit your programming project at least one month before the deadline.
- Send me your project and report.
  - What matters is the code quality not the code size.
- Report should
  1. Explain what your program does.
  2. Describe how your program works.
  3. Describe how to compile your program.
  4. Describe how to run and use your program.