# The source files

The source files can be found here: <https://github.com/zl6977/KBE_chair>

The video demonstration can be found in the blackboard system.

# Product description and selected parameters.

Introduction for each parameter, Figure 1

|  |
| --- |
| **Parameters** |
| leg\_length |
| back\_height |
| seat\_length |
| seat\_width |
| back\_tilt\_angle |
| top\_rail\_added\_length |

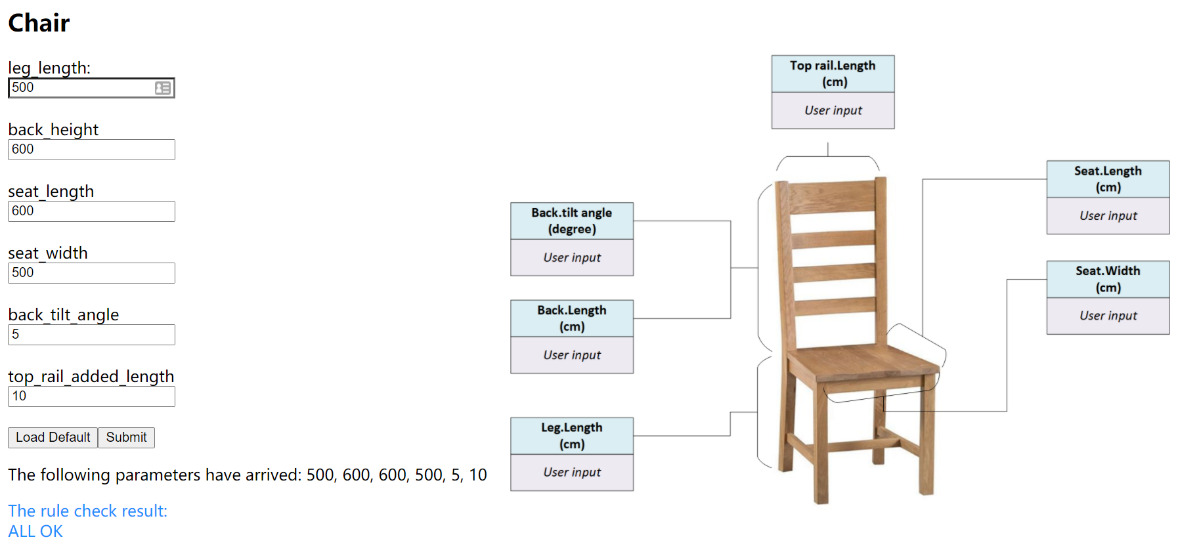


Figure 1 UI and parameters illustration

# KBE application architecture

(main blocks and interconnections between those described).



This KBE application consists of 3 parts:

1. The user interface server: server\_chair\_zzz.py
2. manufacturability check server: manufChecker.py
3. DFA template and file

Usage:

1. Run server\_chair\_zzz.py and manufChecker.py.
2. Open <http://10.24.10.83:1234/orderChair> to check the UI. (see Figure 1)
3. Input the wanted value for each parameter or use *Load Default.*
4. Submit to see if the chair based on the parameter set can be manufactured. (see Figure 1)
5. The DFA file will be generated automatically, which can be seen in NX.

For engineers, the allowable parameter set can be set via web.

1. Open <http://127.0.0.1:4321/setParamsIntervals> (see Figure 2).
2. Input the value for the allowable parameter set.
3. Submit to update the parameter set.
4. New rules come to be applied.

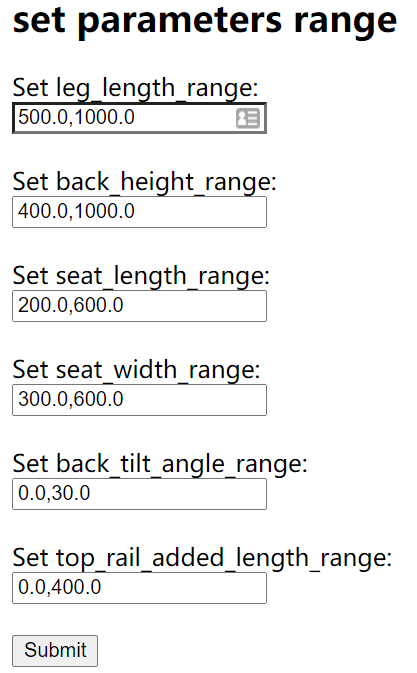


Figure 2 set allowable parameter range

# UML sequence diagrams showing how an order placed



# Description of the modules

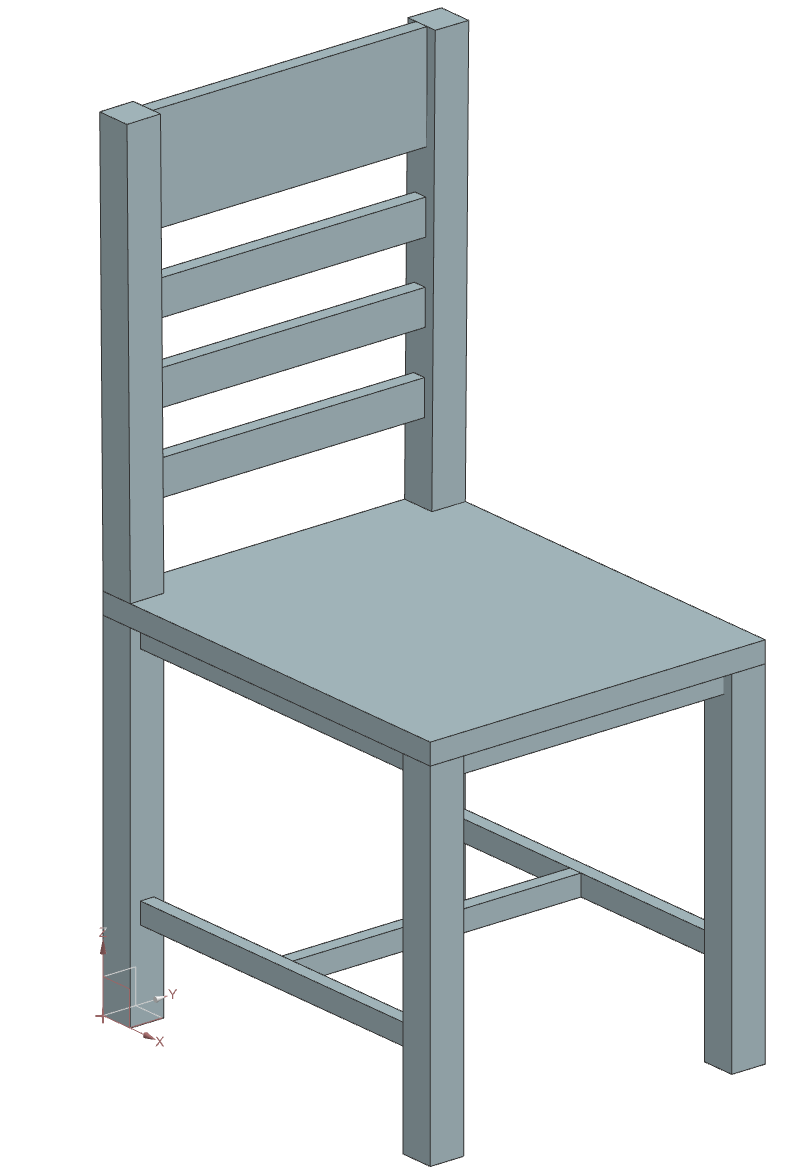
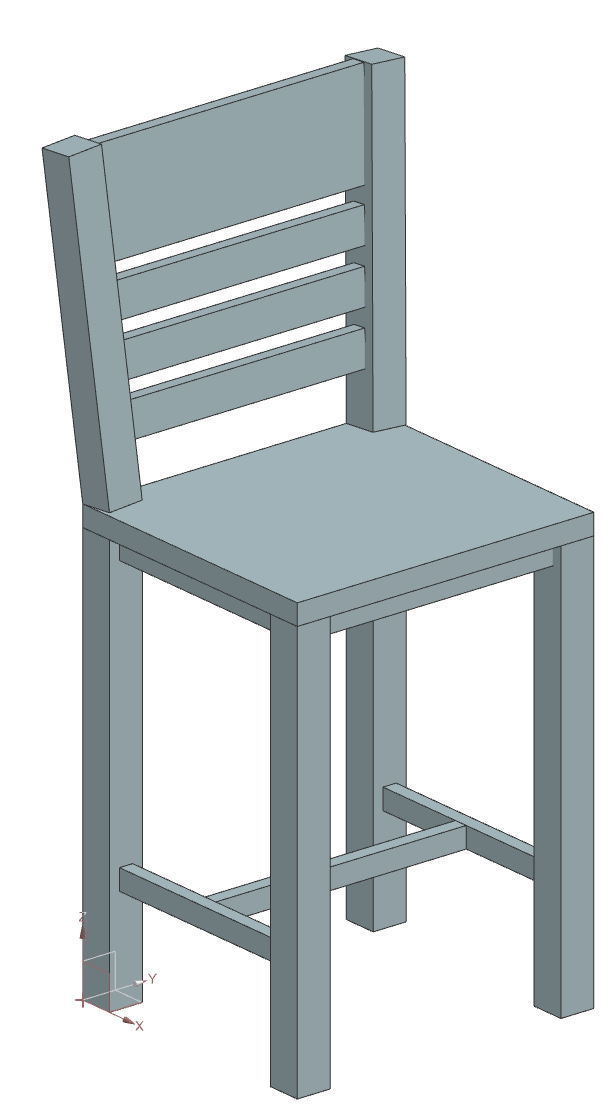
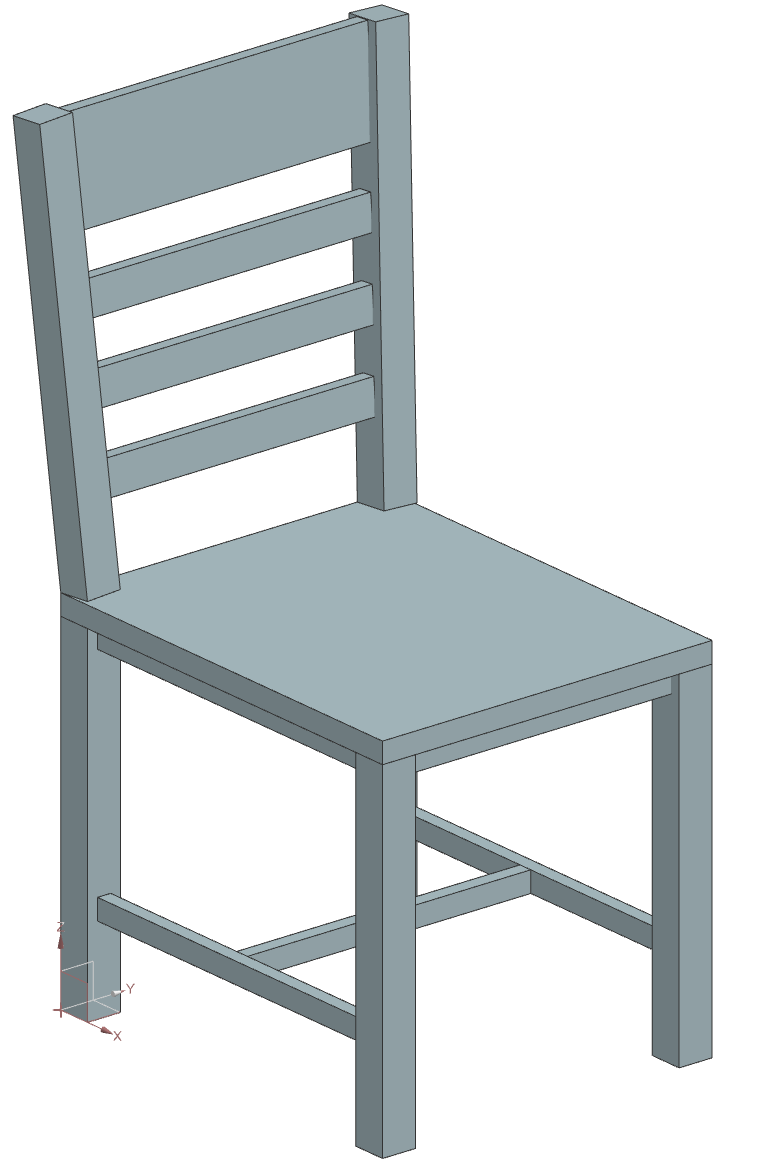
module names, their purpose and main functions.

1. Python *BaseHTTPRequestHandler* library to drive the server side.
2. UI server uses *requests.post* method to call the manufacturability checker via net.
3. [New]*RuleChecker* class to store the allowable parameter set and method.
4. Generate DFA file from template using *string replace* method.

# Result demonstration

3 examples of the product ordered with different and arbitrary values of the parameters.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Chair 1** | **Chair 2** | **Chair 3** |
| leg\_length | 500 | 500 | 600 |
| back\_height | 600 | 600 | 450 |
| seat\_length | 600 | 600 | 400 |
| seat\_width | 500 | 500 | 450 |
| back\_tilt\_angle | 0 | 5 | 5 |
| top\_rail\_added\_length | 10 | 60 | 60 |

# Discussion

somthing