Exercise 1

Define an algorithm in Matlab for the following scheduling problem.

Schedule the following *n* jobs, where *pj* is the processing time on machine i. The goal is to minimize Cmax.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Job | J1 | J2 | J3 | J4 | J5 | J6 | J7 | J8 | J9 | J10 |
| *P1* | 5 | 3 | 6 | 8 | 4 | 12 | 12 | 5 | 3 | 2 |
| *P2* | 12 | 6 | 1 | 5 | 6 | 15 | 3 | 2 | 8 | 1 |
| *P3* | 1 | 20 | 2 | 5 | 7 | 11 | 12 | 2 | 5 | 4 |
| *P4* | 1 | 2 | 1 | 5 | 6 | 2 | 1 | 4 | 4 | 3 |
| *P5* | 2 | 6 | 2 | 1 | 5 | 13 | 2 | 7 | 18 | 3 |
| *P6* | 1 | 3 | 2 | 2 | 2 | 6 | 1 | 12 | 9 | 1 |
| *P7* | 2 | 1 | 2 | 1 | 5 | 1 | 5 | 7 | 11 | 3 |
| *P8* | 10 | 3 | 2 | 2 | 2 | 5 | 2 | 2 | 11 | 2 |

Verify that the solution that has been obtained is optimal or not comparing with the solution obtained in a mathematical programming problem defined in Excel (or other spreadsheet tool with optimization module) or Lingo or Cplex or Matlab.