Acronyms, Symbols and Notations

\( i = 1, \ldots n \) subscript for the job \\
\( j = 1, \ldots m \) subscript for the machine \\
\( p = \) processing time \\
\( t = \) transportation time \\
\( r_i = \) release date for job \( i \) \\
\( d_i = \) due date of job \( i \) \\
\( w_i = \) positive integer weight for job \( i \) \\
\( p_{i,j} = \) processing times of job \( i \) on machine \( j \) \( (1 \leq i \leq m, 1 \leq j \leq n) \)

Given a schedule, one can compute:

\[
C_i = \text{completion time for job } i \\
F_i = C_i - r_i \text{ flow time for job } i \\
L_i = C_i - d_i \text{ lateness for job } i \\
E_i = \max \{ d_i - C_i ; 0 \} \text{ earliness for job } i \\
T_i = \max \{ C_i - d_i ; 0 \} \text{ tardiness for job } i
\]

Some commonly used criteria are the minimization of:

The maximum completion time (makespan): \( C_{\max} = \max_i C_i \)

The maximum lateness: \( L_{\max} = \max_i L_i \)

The maximum earliness: \( E_{\max} = \max_i E_i \)

The total (weighted) completion time: \( \sum_j w_i C_i \)

The total (weighted) or average flow time: \( \frac{1}{n} \sum_j w_i F_i \)

The total (weighted) earliness: \( \sum_j w_i E_i \)

The total (weighted) tardiness: \( \sum_j w_i T_i \)

CDS - Job sequence heuristic developed by the researchers Campbell, Dudek and Smith 
NEH - Job sequence heuristic developed by the researchers Nawaz, Enscore and Ham 
RA – Rapid Access Algorithm developed by the researcher Dannenbring