# Implementation Plan for LNS heuristik

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## First version

### Requirements

- Implement a 5 week schedule
- Library on Wheels not considered
- Softer values such as PL, free day or HB preferences not considered
- Meetings not considered
- Objective function:
  - Minimize unfulfilled worker demand (relaxed hard constraint)
  - Maximize number of stand in librarians
  - Maximize number of stand in assistants
- Hard constraints:
  - 1 task/day for a worker
  - worker must be available to perform task
  - worker must be qualified for task (lib/ass)
  - the total number of tasks to be performed is constant

### Implementation: task based approach

- Initial solution. First distribute weekends to obtain a feasible weekend schedule. Secondly distribute tasks according to some rule (for example by finding the critical task hours). Initial solution not necessarily feasible with respect to the worker demand at each shift.
- Possible classes:
  - Library (contains the demand schedule obtained from the data file, objective function costs associated with demand)

  - Worker (contains availability (week blocks), identity, preferences etc., resulting task schedule, objective function costs associated with the worker)

### Implementation: week block based approach

## Second version

- Implement a 10 week schedule
- Library on Wheels considered
- Meetings considered
- Objective function:
  - Minimize unfulfilled worker demand (relaxed hard constraint)
  - Maximize number of stand in librarians
  - Maximize number of stand in assistants
  - Maximize similar weeks for workers