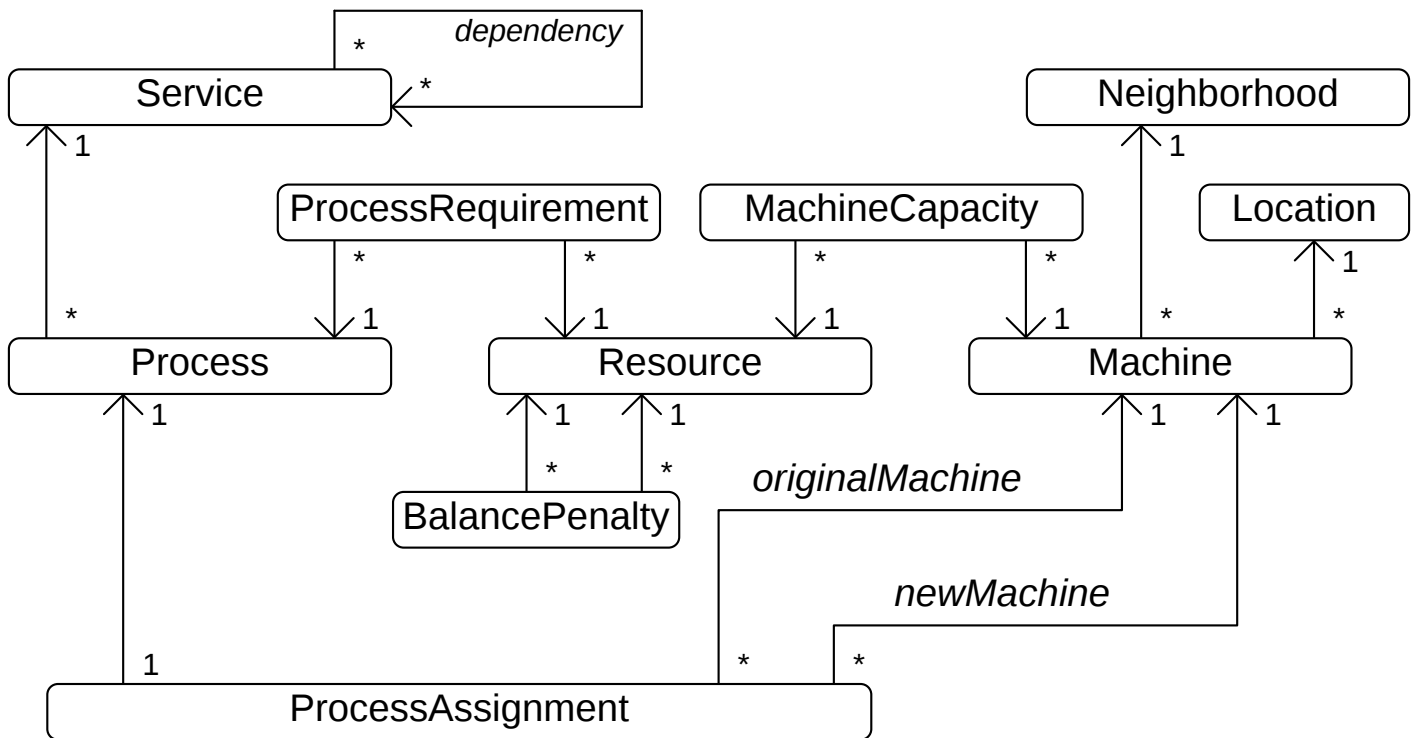# Lab 200 A: Domain annotations

On each class diagram annotate the @PlanningEntity class and @PlanningVariable relationship.

1) Machine reassignment

Optimize an existing cloud by moving processes around to loading balance the resource usage.

```
                    *        dependency
    Service ┌──────────────────────┐
       ▲  │              │ *                          Neighborhood
       │1 └──────────────┘                                 ▲
       │                                                   │1
       │        ProcessRequirement    MachineCapacity      │    Location
       │ *          *        *            *      *          │        ▲
       │            │        │            │      │         *│        │1  *
    Process ◄───────┘   1    Resource ◄───┘  1   Machine ◄──┘        │
       ▲1               ▼        ▲1   ▲1        ▼    ▲1   ▲1
       │                         │ *  │ *                 1      1
       │1                   BalancePenalty
       │                              originalMachine
       │                                        newMachine
       │            1                    *        *
    ProcessAssignment
```

2) Employee shift rostering:

We need enough skilled nurses for every shift, but each nurse can have day (or shift) off requests.

```
   ShiftType ◄──  1   *  SkillRequirement  *   1  ►  Skill
       ▲                                                 ▲
       │1                                                │1
       │                                                 │ *
       │      ShiftDate ◄──  1   *  DayOffRequest    SkillProficiency
       │         ▲1                      │ *              │ *
       │ *       │ *                   1 ▼   ▼ 1
     Shift                          Employee  ──── * 1 ►  Contract
       ▲1   ▲1                        ▲1   ▲1
       │ *  │ *                       │ *
         ShiftAssignment
       │ *                              │ *
     ShiftOffRequest
```