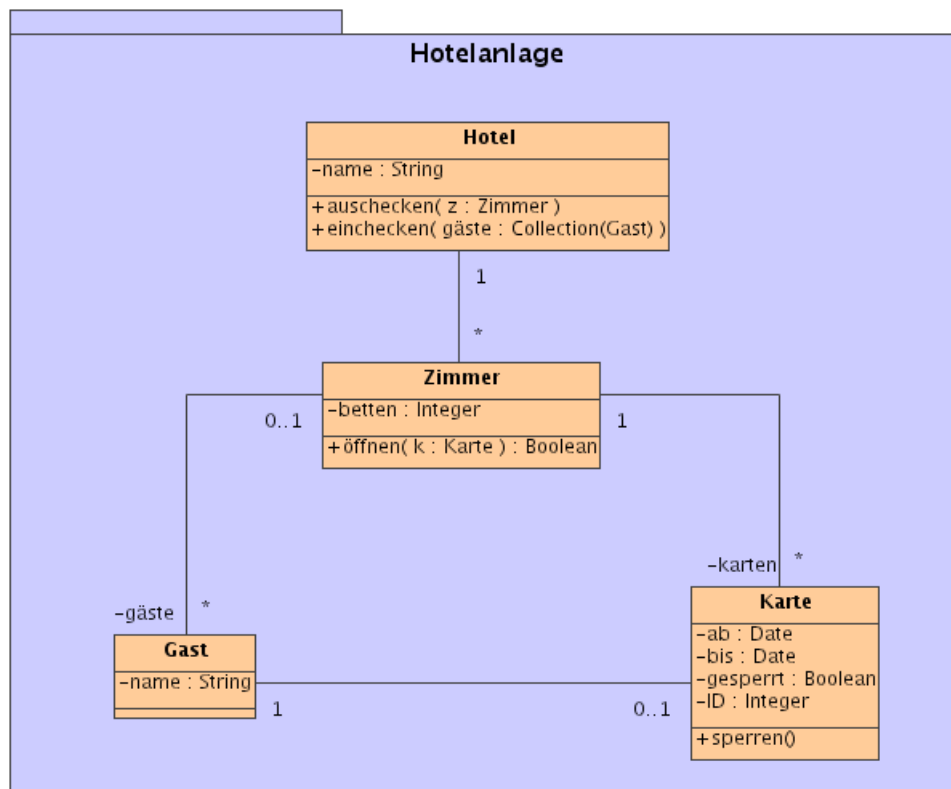


Übungen zu Methoden des Software-Engineering: Lösungsvorschläge  
( Dr. N. Koch, Dr. H. Störrle, Prof. Dr. M. Wirsing)

Aufgabe 1 (OCL)

a)



b) **context** Hotelanlage **inv**:

```
Zimmer.allInstances()->forall(z|z.gäste->forall(g|
z.karten->includes(g.karte) )) and
Zimmer.allInstances()->forall(z|z.karten->forall(k|z.gäste->includes(k)))
Zimmer.allInstances()->forall(z|z.karten->
forall(k|z.gäste->includes(k.gäste)))
```

c) **context** Zimmer **inv**:

```
self.gäste->size() <= self.betten
```

**context** Karte **inv**:

```
Karte.allInstances()->forall(k1,k2 |
k1.ID = k2.ID implies k1 = k2)
```

d)

```
context Zimmer::öffnen(k:Karte):Boolean
pre:   true
post:  result = not k.gesperrt and
          k.ab <= today() and
          k.bis > today() and
          self.karten->includes(k)
```

```
context Karte::sperren()
pre:   true
post:  self.gesperrt = true
```

```
context Hotel::einchecken(g:Collection(Gast))
pre:   self.zimmer->exists(z|z.betten >= g->size() and
          z.gäste->size() = 0)
post:  self.zimmer->exists(z|z.gäste@pre->size() = 0 and
          z.gäste = g and
          g->forall(gast|gast.zimmer = z and gast.karte <> null))
```

```
context Hotel::auschecken(z:Zimmer)
pre:   true
post:  z.gäste->isEmpty() and
          z.karten->isEmpty() and
          z.gäste@pre->forall(g|g.karte = null)
```