OCL Expressions for Formal Requirements

1. "Offerings are unique. In other words, multiple offerings on the same day and time slot must be offered at a different location."

Context Organisation
Inv: forAll(o1,o2 | (o1.schedule.startTime= o2.schedule.startTime and
               o1.schedule.endTime= o2.schedule.endTime and
               o1.schedule.dayOfWeek -> select (d:dayOfWeek |
                                 o1.schedule.dayOfWeek->includes(d)))
          implies o1.location<>o2.location or o1.space<>o2.space)

2. "Any client who is underage must necessarily be accompanied by an adult who acts as their guardian."

Context UnderageClient
Inv: self.guardian <> null

3. "The city associated with an offering must be one the city's that the instructor has indicated in their availabilities."

context OfferingItem
 inv: self.instructor.availablecities -> includes(self.offering.space.location.city)

4. "A client does not have multiple bookings on the same day and time slot."

context Client
 inv: self.bookings->forAll(b1, b2 | b1 <> b2 **implies**
                    (b1.offeringItem.startTime <> b2. offeringItem.startTime **or**
                    b1.offeringItem.endTime <> b2. offeringItem.endTime **or**
                    b1.offeringItem.offering.schedule.dayOfWeek ->
                    select (d:dayOfWeek |
                         b2.offeringItem.offering.schedule.dayOfWeek
                         -> includes(d)
                         -> empty()
)
)
)