*This homework assignment (plus reading) required 2.25 h. Answering questions from the assigned section required .75h*

7.7.2) A modeling notation is moreso an abstract expression of the design decisions that shape an overall system's architecture, in comparison with a visualization. In terms of modeling design decisions, a visualization is the solidified, concrete representation that may convey the properties described by one or more notations, using one or more viewpoints from which to capture the system characteristics and behaviors. In the sense that a notational model may be formally defined in terms of definitions, attributes, or rules dictating the fashions in which system architectures may be captured, a particular sort of visualization may be the de jure visual means to portray a given architecture, accordingly, using some form of concrete visual design, like flow-chart, box-and-line diagrams or pictograph.

7.7.6) Visualizations can take various shapes and forms exhibiting various qualities in their result. They may be of a graphical or textual nature, may be new works atop an extant notation Or a canonical representation backed by it, may be specific to one style or visualizations or a composite or derivative of several. Additionally, they may preserve fidelity, consistency, comprehensibility, or possess dynamism, aesthetic or extensibility characteristics from which they can be evaluated.

7.8.1) The UML notation is supported by graphical notation, using familiar boxes and lines, and arrowheads symbols or it may represent an architecture in textual form using constraints-oriented semantics expressed via XML (for .e.g.) syntax. The UML representation of the Lunar Lander system might be:
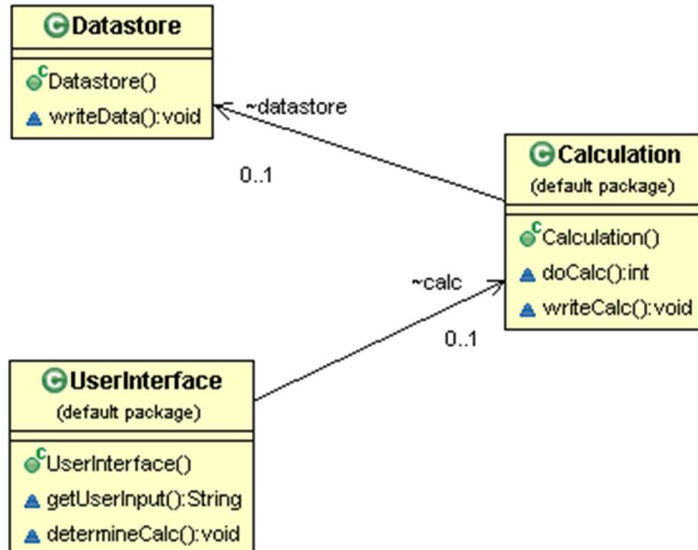
The xADL representation of Lunar Lander might be:

```
archInstance{
  componentInstance{
    (attr) id   = "UI"
    description = "UserInterface"

    interfaceInstance{
```

```
      (attr) id = "UI.IFACE_RIGHT"
      description = "UI Right-side Interface"
      direction = "inout"
    }
  }

  componentInstance{
    (attr) id   = "Calc"
    description = "Calculator component"

    interfaceInstance{
      (attr) id = "Calc.IFACE_LEFT"
      description = "Calculator Left-side Interface"
      direction = "inout"
    }
  }

  componentInstance{
    (attr) id   = "DS"
    description = "Datastore component"

    interfaceInstance{
      (attr) id = "DS.IFACE_RIGHT"
      description = "Datastore Right-side Interface"
      direction = "inout"
    }
  }

  linkInstance{
    (attr) id = "link1"
    description = "Calc to UI Link"
    point{
      (link) anchorOnInterface = "#Calc.IFACE_LEFT"
    }
    point{
      (link) anchorOnInterface = "#UI.IFACE_RIGHT"
    }
  }

  linkInstance{
    (attr) id = "link2"
    description = "Calc to Datastore Link"
    point{
      (link) anchorOnInterface = "#Calc.IFACE_LEFT"
    }
    point{
      (link) anchorOnInterface = "#DS.IFACE_RIGHT"
    }
  }
}
```

To compare and discuss the differences between these two representations of the same viewpoint using difference visualizations, it is important to note that system specifics such as whether a callback is used or intended to be used in the implementation are not impossible yet are

exceedingly more difficult to capture in either form vs. a form which is comprised of natural language modeling components. The above partial model is representative of the ease and difficulties associated with the modeling limitation described above.

7.8.5) Multi-touch interactive displays, allowing manipulating of on-screen graphics via a table-top surface that responds to multiple points of human contact would be a novel adaptation and use of the latest touch-oriented technologies to apply towards the architectural modeling domain. The sort of prototyped demo could be used to rotate a system's views or change viewpoints (as can be described) using current 3D web rendering or OpenGL for visualizations on PCs and Macs) or could incorporate the capability to visualize varying levels of detail. A hindrance includes the fact that 3D modeling of architectures is not yet deeply embraced as a practice and the idea of table-touch-surface manipulation of such is presumably a new, un-researched one thus far.