**Competency Question G1-A3**

*"Which date/time selection components are most appropriate for Japanese cultural contexts?"*

**1. Involved Classes**

| **Class** | **Hierarchy** |
| --- | --- |
| CulturalContext | Context ➔ CulturalContext |
| DateTimeInputComponent | UIComponent ➔ InteractiveComponent ➔ InputComponent ➔ DateTimeInputComponent |

**2. Object Properties**

| **Property** | **Domain** | **Range** | **Purpose** |
| --- | --- | --- | --- |
| suitableFor | DateTimeInputComponent | CulturalContext | Links date/time components to cultural contexts they’re designed for. |

**3. Data Properties**

| **Property** | **Domain** | **Range** | **Purpose** |
| --- | --- | --- | --- |
| hasCalendarSystem | CulturalContext | xsd:string | Specifies the calendar system (e.g., "Gregorian", "JapaneseEra"). |
| supportsCalendarSystem | DateTimeInputComponent | xsd:string | Indicates which calendar systems a component supports (e.g., "JapaneseEra"). |

**4. Instances**

| **Instance** | **Class** | **Data Property Assertions** |
| --- | --- | --- |
| JapaneseContext | CulturalContext | hasCalendarSystem "JapaneseEra" |
| DatePickerJP | DateTimeInputComponent | supportsCalendarSystem "JapaneseEra", suitableFor JapaneseContext |

**5. Connections**

**Visual Representation**

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[DateTimeInputComponent] ── suitableFor ──→ [CulturalContext]

│ │

└─ supportsCalendarSystem "JapaneseEra" └─ hasCalendarSystem "JapaneseEra"

**Explanation**:

* The DatePickerJP (a DateTimeInputComponent) is linked to JapaneseContext via suitableFor.
* JapaneseContext uses the JapaneseEra calendar system.
* DatePickerJP explicitly supports the JapaneseEra calendar.

**6. Validation Steps**

1. **SPARQL Query**:

sparql

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PREFIX : <http://your-ontology-iri#>

SELECT ?component

WHERE {

?component a :DateTimeInputComponent ;

:suitableFor ?context ;

:supportsCalendarSystem ?calendar .

?context :hasCalendarSystem ?calendar .

FILTER (?calendar = "JapaneseEra")

}

**Result**: DatePickerJP.

1. **Reasoner Check**:
   * Ensure supportsCalendarSystem and hasCalendarSystem align (e.g., no component supports "JapaneseEra" if no context requires it).

**7. Common Mistakes to Avoid**

* **Ambiguity**: Define "JapaneseEra" clearly (e.g., "Uses Reiwa, Heisei eras").
* **Redundancy**: Avoid duplicating calendar data on both component and context; use suitableFor to link them.

**Next Steps**

1. **Add Instances**: Create DatePickerJP and JapaneseContext in Protégé.
2. **Assert Properties**: Assign hasCalendarSystem and supportsCalendarSystem.
3. **Run Reasoner**: Check for consistency (e.g., conflicting calendar systems).