

Multimodal Interaction

2nd Assignment

Some useful information

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Deadline for Assignment #2

- 15 November EOD
- (+ 2 days without penalty)

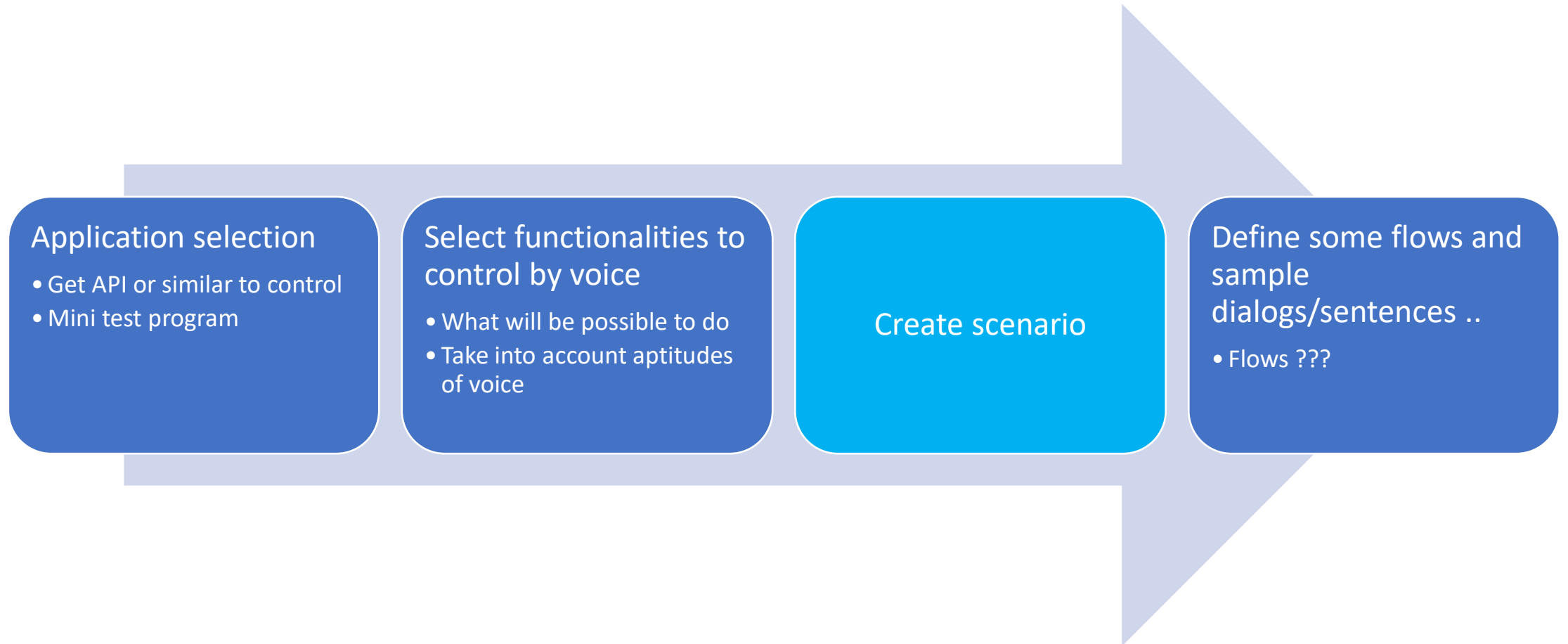
Next week deliverable

- Scenario
- Selected Use Cases
- Sample Dialogues
- (if possible) Flow
- Not later than EOD 7 November

Development Steps



Suggested steps (1) : Concept & Design



Suggested steps (2) : 1st prototype (very simple)

Try sample modality

- And sample App
- And Interaction manager

Initial grammar for your
input sentences

Change sample application

- To communicate with selected app
- To decode events from modality
 - Suggestion> use semantics

SCENARIOS

- Scenarios are sketches with words.
- They are stories about what it will be like to use the system once it has been made and the context in which it will be used.
- Use scenarios to rapidly sketch the final product in context for both inspiration and product definition.

Example:

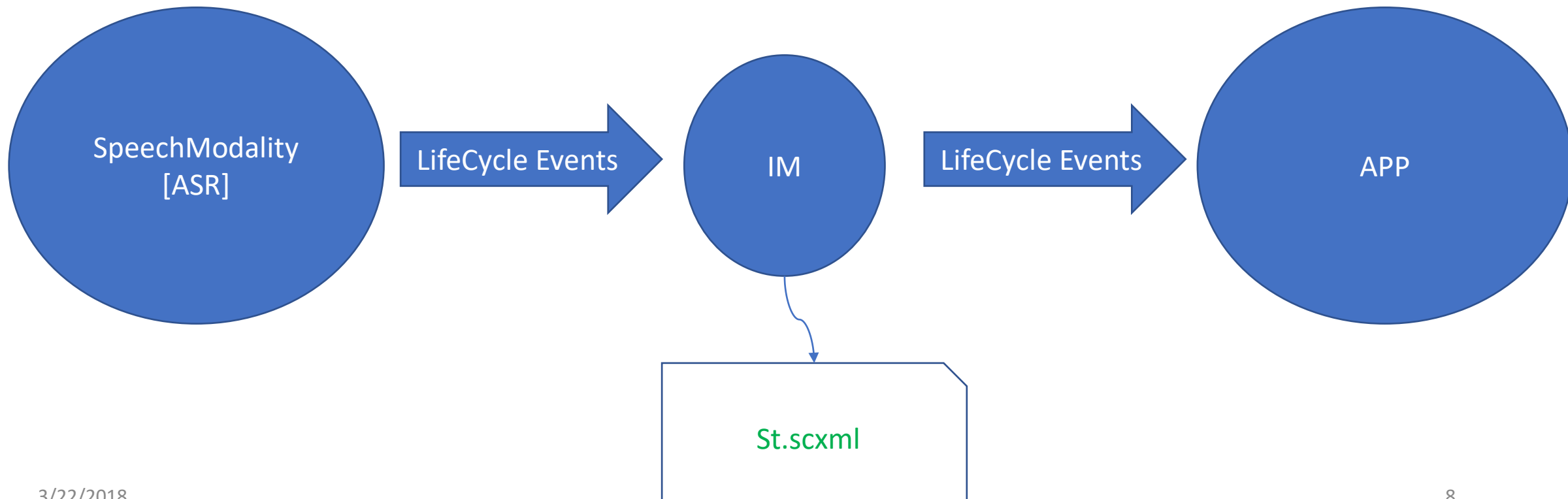
When she purchases her entrance ticket, Lily is handed the Park Pass device.

Glancing at it, she sees the main screen has a map on it and one area is blinking. She touches the blinking area, and the map zooms in and shows that a parade will take place in that part of the park in 15 minutes.

*She's not interested in that and instead wants to see what rides are nearby, so **using a slider she zooms out from the map**, then taps a button to display rides on the map. The rides appear and she taps one to select it; information about the ride, including the wait time, is then displayed*

Modality, IM, app : a first contact with IEETA MUI Architecture

- Ver slides de aulas mais adiante do semestre passado



Code essentials (1) – in the modality

```
public SpeechMod()
```

```
...
```

```
    //init LifeCycleEvents..
```

```
lce = new LifeCycleEvents("ASR", "IM", "speech-1", "acoustic", "command");  
    // LifeCycleEvents(      source, target, id,           medium,           mode)
```

```
    // init communication
```

```
mmic = new MmiCommunication("localhost", 8000, "User1", "ASR");  
    // MmiCommunication(string IMhost, int portIM, string UserOD, string thisModalityName)
```

```
mmic.Send(lce.NewContextRequest());
```

```
... •
```

Code essentials (1)

```
private void Sre_SpeechRecognized(object sender, SpeechRecognizedEventArgs e)
{
    ...
    //SEND
    // IMPORTANT TO KEEP THE FORMAT {"recognized":["SHAPE","COLOR"]}
    string json = "{ \"recognized\": [\"";
    foreach (var resultSemantic in e.Result.Semantics)
        json+= "\"" + resultSemantic.Value.Value + "\", ";

    json = json.Substring(0, json.Length - 2);
    json += "] }";

    var exNot = lce.ExtensionNotification(e.Result.Audio.StartTime+"",
    e.Result.Audio.StartTime.Add(e.Result.Audio.Duration)+"",e.Result.Confidence,
    json);
    mmic.Send(exNot);
}
```

Grammar

- In file ptG.grxml

```
<rule id="rootRule" scope="public">
  <item>
    <item>
      <ruleref uri="#object"/>
      <tag>out.shape=rules.latest();</tag>
    </item>
    <item>
      <ruleref uri="#color"/>
      <tag>out.color=rules.latest();</tag>
    </item>
  </item>
</rule>
```

Grammar (cont.)

```
<rule id="color">  
  <one-of>  
    <item>verde<tag>out="GREEN"</tag></item>  
    <item>azul<tag>out="BLUE"</tag></item>  
    <item>vermelho<tag>out="RED"</tag></item>  
  </one-of>  
</rule>
```

- More info:

- SRGS: <https://www.youtube.com/watch?v=18n6q0C3-eg>
- Why Semantic: <https://www.youtube.com/watch?v=PMSkQ3Rdkuk>
- SISR tags: <https://www.w3.org/TR/semantic-interpretation/>

Code essentials (2) – using IM

- `java -jar mmiframeworkV2.jar`
 - In dir IM
- Suggestion: creat batch to run it ...

Code essentials (3) : the application

```
public MainWindow()
```

```
...
```

```
mmiC = new MmiCommunication("localhost", 8000, "User1",  
"GUI");
```

```
mmiC.Message += MmiC_Message;
```

```
mmiC.Start();
```

Code essentials (3)

```
private void MmiC_Message(object sender, MmiEventArgs e){  
...  
var doc = XDocument.Parse(e.Message);  
var com = doc.Descendants("command").FirstOrDefault().Value;  
  
dynamic json = JsonConvert.DeserializeObject(com);  
  
Shape _s = null;  
switch ((string)json.recognized[0].ToString()) {  
    case "SQUARE": _s = rectangle;  
    ...  
}
```

Suggested steps (3) : improve (iterative)

