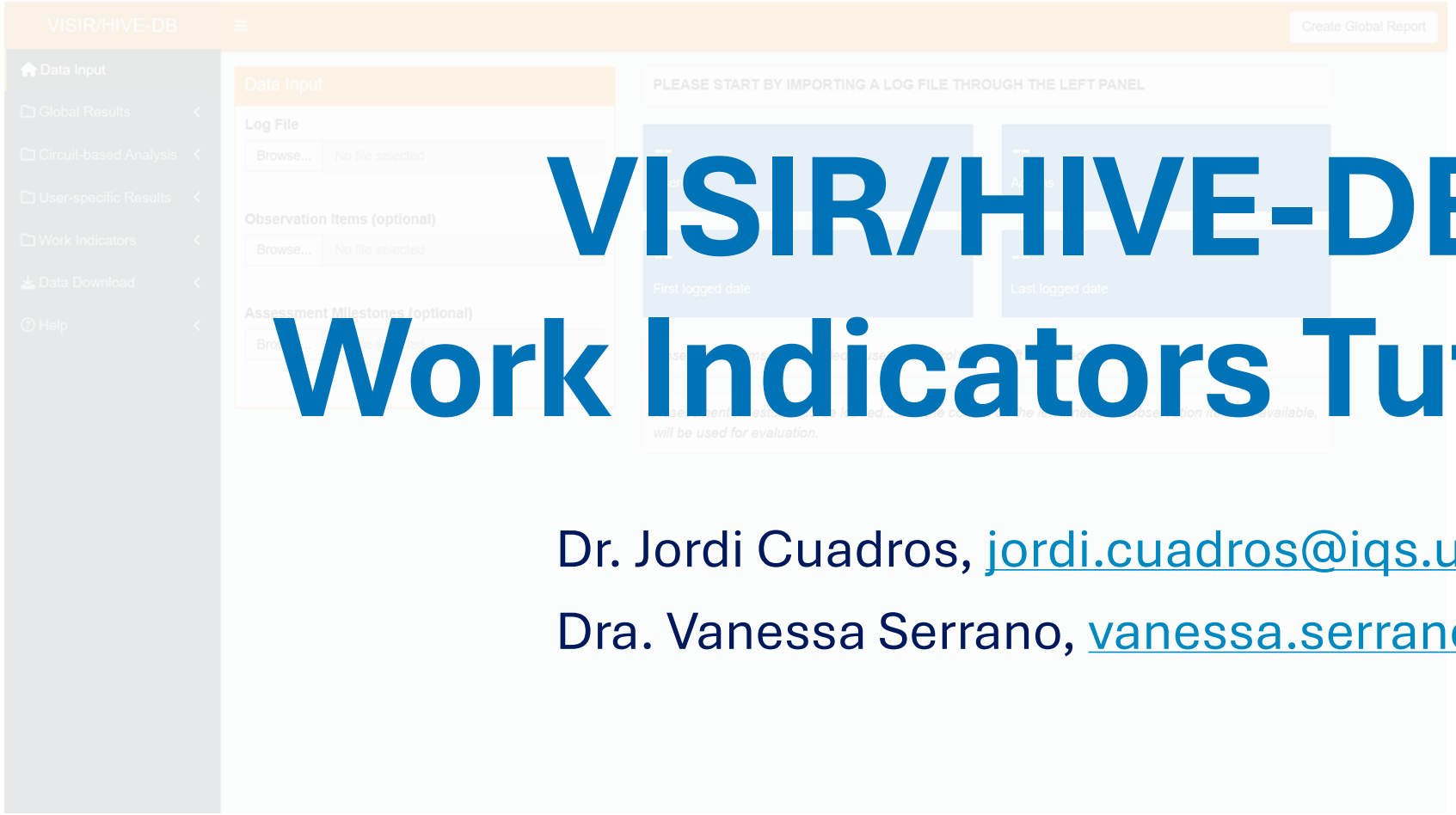


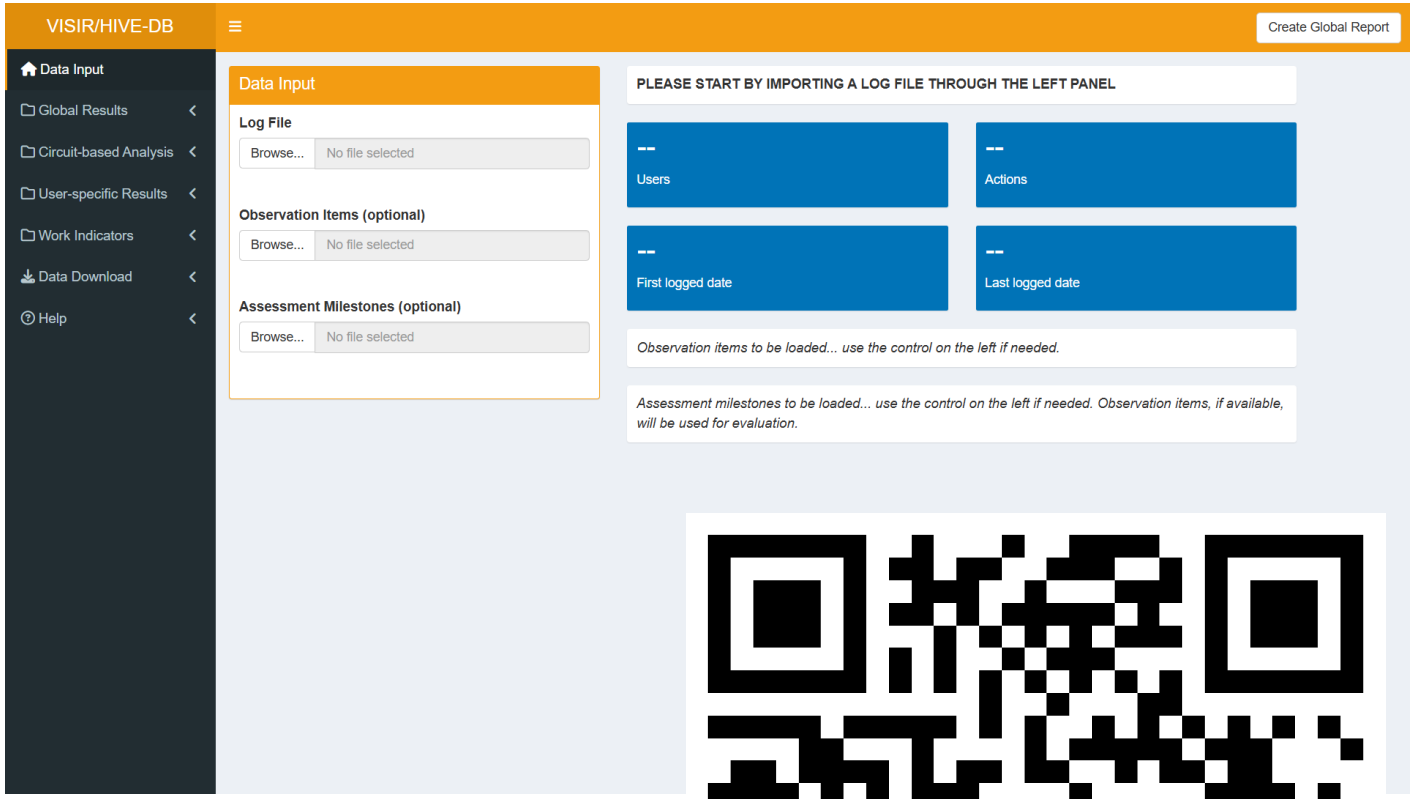
VISIR/HIVE-DB
Work Indicators Tutorial

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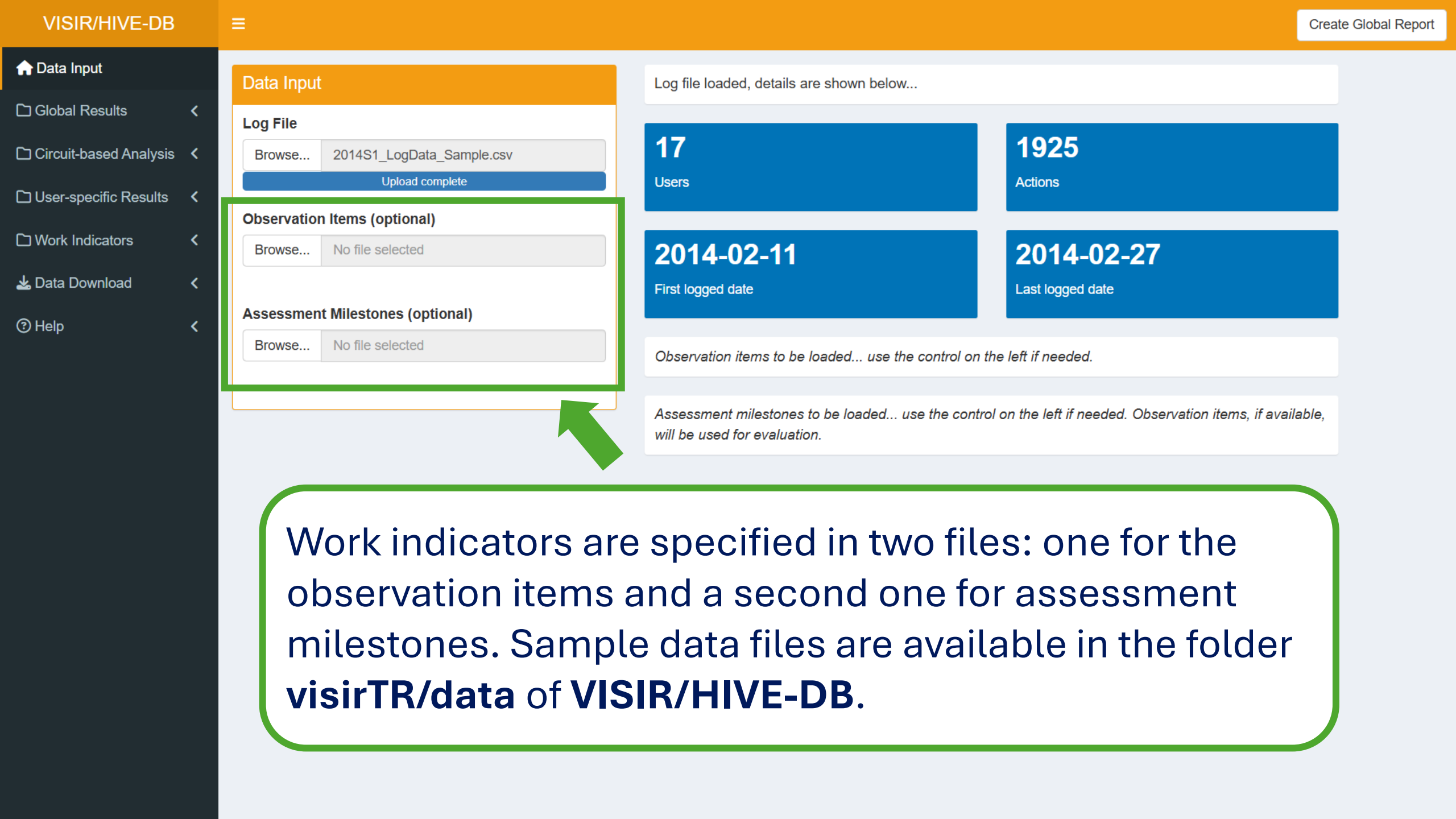
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VISIR/HIVE-DB

- VISIR/HIVE-DB is a teacher-facing learning analytics dashboard to explore log data from VISIR or HIVE.



- Further information is available at https://vanessaserrano.github.io/visirTR/.


VISIR/HIVE-DB
Create Global Report
Data Input
Global Results
Circuit-based Analysis
User-specific Results
Work Indicators
Data Download
Help
Data Input
Log File
Browse...
2014S1_LogData_Sample.csv
Upload complete
Observation Items (optional)
Browse...
No file selected
Assessment Milestones (optional)
Browse...
No file selected
Log file loaded, details are shown below...
17
Users
1925
Actions
2014-02-11
First logged date
2014-02-27
Last logged date
Observation items to be loaded... use the control on the left if needed.
Assessment milestones to be loaded... use the control on the left if needed. Observation items, if available, will be used for evaluation.
Work indicators are specified in two files: one for the observation items and a second one for assessment milestones. Sample data files are available in the folder visirTR/data of VISIR/HIVE-DB.

Summarized Experiment

Experiment data is summarized inside VISIR/HIVE-DB to a simple string containing coded, normalized, simplified circuits, result, voltage and measure.

<circuit>W_X A15 A17/W_X A9 A11/W_X VDC+25V_1_1 A9/W_X A21 0/W_X 0 VDCCOM_1_1/W_X A17 DMM_1_1/W_X A21 DMM_1_2/R_X A9 A13 1k/R_X A13 A17 10k/R_X A17 A21 1k/R_X A11 A15 10k</circuit>

<normalizedCircuit>R_X P01 DMM_1_1 10k/R_X P01 VDC+25V_1_1 1k/R_X DMM_1_1 GND 1k/R_X DMM_1_1 VDC+25V_1_1 10k/W_X DMM_1_2 GND/W_X GND VDCCOM_1_1</normalizedCircuit>

<simplifiedCircuit>R_X P01 DMM_1_1 10k/R_X P01 VDC+25V_1_1 1k/R_X DMM_1_1 GND 1k/R_X DMM_1_1 VDC+25V_1_1 10k/W_X DMM_1_2 GND/W_X GND VDCCOM_1_1</simplifiedCircuit>

<result>1.589682</result>

<voltage>9.999547</voltage>

<measure>dc vo</measure>

Observation Items – File Structure

- Observation items check whether specific features are part of an experiment or not.
- Observation items are specified in a tab-separated unquoted text file, which must be prepared outside of VISIR/HIVE-DB.
- The file includes three columns,
  (1) a unique name for the observation item (milNames),
  (2) a regular expression which will be matched to each experiment (regExps), and
  (3) a piece of calculation in R that evaluates to either TRUE or FALSE (if a calculation is not required, TRUE should be added to this column, logTests).
- A first line with the headers is expected and the file can contain as many observation items as required by the desired analysis.

Observation Items – Two simple examples

```
milNames  regExps                          logTests
OI01      <measure>dc vo</measure>  TRUE
OI02      <result>(.*)</result>     as.numeric(m[[1]])>5
```

- OI01 checks for an experiment where the multimeter is set to measure direct voltage "`dc vo`". There is no calculation, so "`TRUE`" is included in the third column.

Observation Items – Two simple examples

```
milNames  regExps                          logTests
OI01      <measure>dc vo</measure>  TRUE
OI02      <result>(.*)</result>     as.numeric(m[[1]])>5
```

- OI02 takes the result of the experiment by catching any character "`(.*)`" within the results part of the summarized experiment. The extracted text "`m[[1]]`" is converted to number and compared to 5, "`as.numeric(m[[1]])>5`".

Observation Items – A complex example

```
milNames regExps                          logTests
OI03     <simplifiedCircuit>(.*R          !grepl("R_X.*R_X.*R_X.*R_X
         _X.*R_X.*R_X.*R_X.*)</s           .*R_X",m[[1]]) &
         implifiedCircuit>.*<res          !grepl("GND",m[[1]]) &
         ult>(.*)</result>.*<mea          as.numeric(m[[2]])>=1828 &
         sure>resis</measure>             as.numeric(m[[2]])<=1860
```

- OI03 checks that the simplified circuit includes four resistors "`R_X`" and mesures the resistance "`resis`". Both the simplified circuit and the result are extracted. " `.*` " matches any string.

Observation Items – A complex example

milNames	regExps	logTests
OI03	<simplifiedCircuit>(.*R_X.*R_X.*R_X.*R_X.*)</simplifiedCircuit>.*<result>(.*)</result>.*<measure>resis</measure>	!grepl("R_X.*R_X.*R_X.*R_X.*R_X",m[[1]]) & !grepl("GND",m[[1]]) & as.numeric(m[[2]])>=1828 & as.numeric(m[[2]])<=1860

- OI03 will then check that the simplified circuit doesn't have five resistors or more, the circuit is not wired to ground, and the result is between 1828 and 1860.

Assessment Milestones – File Structure

- Assessment milestones check if a student fulfilled a logical combination of observation items. Each one of the observation items can be reached in a different experiment.
- Assessment milestones are also encoded in a tab-separated unquoted text file.
- Each milestone includes two columns,
  (1) a unique name and
  (2) a logical evaluation which refers to the observation items.
- Headers are also expected.

Assessment Milestones – Two examples

milNames	evTests
AM01	om['OI01']|om['OI02']
AM02	om['OI01']&om['OI03']

- AM01 checks if the student performed OI01 or OI02.
- AM02 tests whether the student performed BOTH OI01 and OI03.