UNIVERSITY OF LEEDS School of Computing	**EXPERIMENT DOCUMENTATION**	**Date of experiment** 17/05/2017
	Experiment title: Event log creation of cancer patient in **icustays** table	
		Experiment code M3C-ICU001
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Area of investigation

This experiment is to create an event log of cancer patient records from the **icustays** table of the MIMIC-III database. The format is [case_id, activity, timestamp].

All patients who diagnosed with cancer-related diagnose code, at least once, will be included.

Data source

The **icustays** table in the MIMIC-III database. The **icustays** table defines each ICUSTAY_ID in the database, i.e. defines a single ICU stay.

Research question

Is the **icustays** table in the MIMIC-III database can be used for process mining of cancer patient treatment?

Hypothesis

The **icustays** table can be used as it provides at least minimum requirements for process mining, which are case_id, activity, and timestamp.
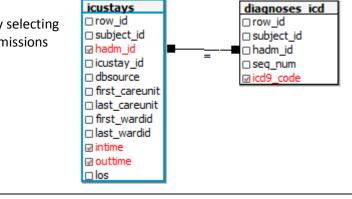
Method

1) **Extract** the MIMIC-III database in PostgreSQL by selecting [hadm_id, intime, outtime] of cancer patient admissions [icd9_codes 140x-239x].

2) **Tranform** into event log with [case_id, activity, timestamp] format.
   case_id = subject_id/ hadm_id/ icustay_id
   activity = {ICU in, ICU out}
   timestamp = {intime, outtime}

2) Save as .csv file

3) **Load** into ProM

icustays
- ☐ row_id
- ☐ subject_id
- ☑ hadm_id
- ☐ icustay_id
- ☐ dbsource
- ☐ first_careunit
- ☐ last_careunit
- ☐ first_wardid
- ☐ last_wardid
- ☑ intime
- ☑ outtime
- ☐ los

diagnoses_icd
- ☐ row_id
- ☐ subject_id
- ☐ hadm_id
- ☐ seq_num
- ☑ icd9_code

Results

This resulted in 17308 rows

	hadm_id integer	activity text	charttime timestamp(0) without time zone
1	100006	ICU in	2108-04-06 15:50:15
2	100006	ICU out	2108-04-11 15:18:03
3	100010	ICU in	2109-12-10 21:58:01
4	100010	ICU out	2109-12-12 12:13:20
5	100018	ICU in	2176-08-29 16:56:37
6	100018	ICU out	2176-09-02 15:04:36
7	100037	ICU in	2183-03-23 18:22:04
8	100037	ICU out	2183-03-25 14:27:12
9	100037	ICU in	2183-04-20 13:16:43
10	100037	ICU out	2183-04-23 17:15:18
11	100039	ICU in	2174-05-05 16:26:40
12	100039	ICU out	2174-05-12 18:11:09

Discussion

The **icustays** table contains minimum required columns for process mining, with additional step of creating transactional table. The resulted event log would be loaded into ProM in the Stage 2.

Conclusion

Hypothesis proved. The **icustays** table can be used to create event logs.