CIND 820 XJH Final Project by Sylvia Pereira
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Data Preparation

The data preparation was performed in Alteryx Designer Desktop software.

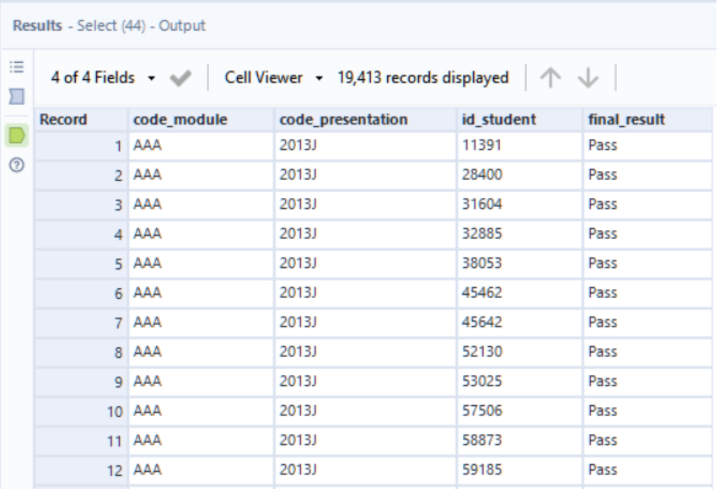
Glossary
VLE: Virtual Learning Environment

Below you can follow the steps I used to prepare the dataset for the Exploratory Data Analysis (EDA) report.

Original datasets can be found at: https://analyse.kmi.open.ac.uk/open_dataset

The first step in the process was to filter students that Passed or Failed the courses and remove undesired columns. Other results, such as withdrawal and distinction, were dropped from the dataset.
Table: **StudentInfo.csv**

Result: Table with four columns and 19,413 records.



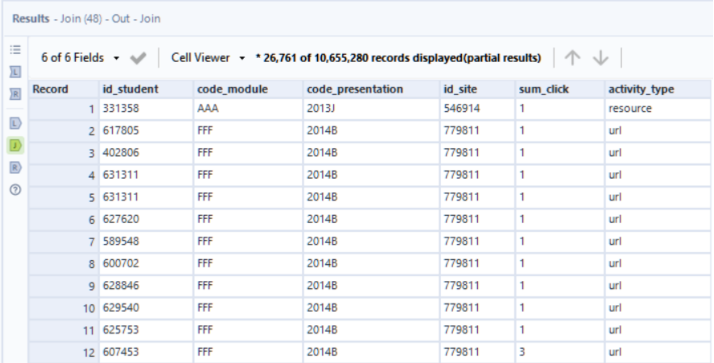
Results - Select (44) - Output

4 of 4 Fields   Cell Viewer   19,413 records displayed

Record	code_module	code_presentation	id_student	final_result
1	AAA	2013J	11391	Pass
2	AAA	2013J	28400	Pass
3	AAA	2013J	31604	Pass
4	AAA	2013J	32885	Pass
5	AAA	2013J	38053	Pass
6	AAA	2013J	45462	Pass
7	AAA	2013J	45642	Pass
8	AAA	2013J	52130	Pass
9	AAA	2013J	53025	Pass
10	AAA	2013J	57506	Pass
11	AAA	2013J	58873	Pass
12	AAA	2013J	59185	Pass

StudentVle.csv and **vle.csv** tables were combined to summarize the VLE interactions per student. Duplicates and undesired fields were removed.

Result: Table with six columns and 10,655,280 records.



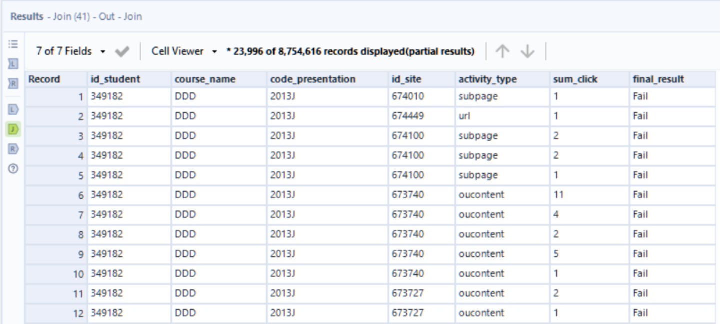
Results - Join (48) - Out - Join

6 of 6 Fields   Cell Viewer   * 26,761 of 10,655,280 records displayed(partial results)

Record	id_student	code_module	code_presentation	id_site	sum_click	activity_type
1	331358	AAA	2013J	546914	1	resource
2	617805	FFF	2014B	779811	1	url
3	402806	FFF	2014B	779811	1	url
4	631311	FFF	2014B	779811	1	url
5	631311	FFF	2014B	779811	1	url
6	627620	FFF	2014B	779811	1	url
7	589548	FFF	2014B	779811	1	url
8	600702	FFF	2014B	779811	1	url
9	628846	FFF	2014B	779811	1	url
10	629540	FFF	2014B	779811	1	url
11	625753	FFF	2014B	779811	1	url
12	607453	FFF	2014B	779811	3	url

Using the Join tool, the results of **StudentInfo.csv** and the combined dataset from **StudentVle.csv** + **vle.csv** were joined again to form the working dataset.

Result: Table with seven columns and 8,754,616 records.



Results - Join (41) - Out - Join

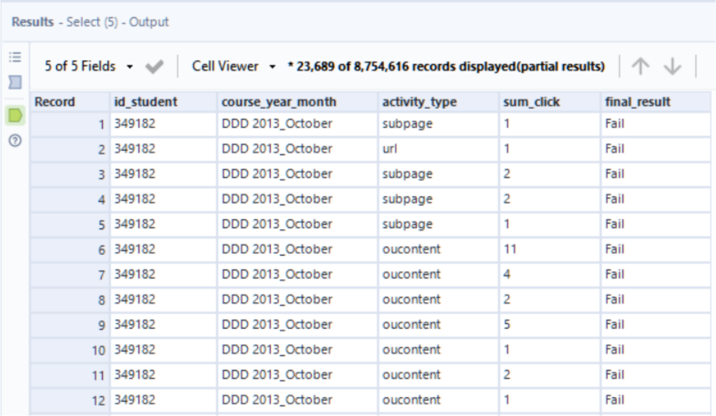
7 of 7 Fields · Cell Viewer · * 23,996 of 8,754,616 records displayed(partial results)

Record	id_student	course_name	code_presentation	id_site	activity_type	sum_click	final_result
1	349182	DDD	2013J	674010	subpage	1	Fail
2	349182	DDD	2013J	674449	url	1	Fail
3	349182	DDD	2013J	674100	subpage	2	Fail
4	349182	DDD	2013J	674100	subpage	2	Fail
5	349182	DDD	2013J	674100	subpage	1	Fail
6	349182	DDD	2013J	673740	oucontent	11	Fail
7	349182	DDD	2013J	673740	oucontent	4	Fail
8	349182	DDD	2013J	673740	oucontent	2	Fail
9	349182	DDD	2013J	673740	oucontent	5	Fail
10	349182	DDD	2013J	673740	oucontent	1	Fail
11	349182	DDD	2013J	673727	oucontent	2	Fail
12	349182	DDD	2013J	673727	oucontent	1	Fail

Using the Find Replace tool, the fields course_name and code_presentation were replaced by one field called course_year_month to clarify the information.

The old fields course_name and code_presentation were dropped from the dataset as well as the id_site field since they are not relevant to this analysis.

Result: Table with five columns and 8,754,616 records.



Results - Select (5) - Output

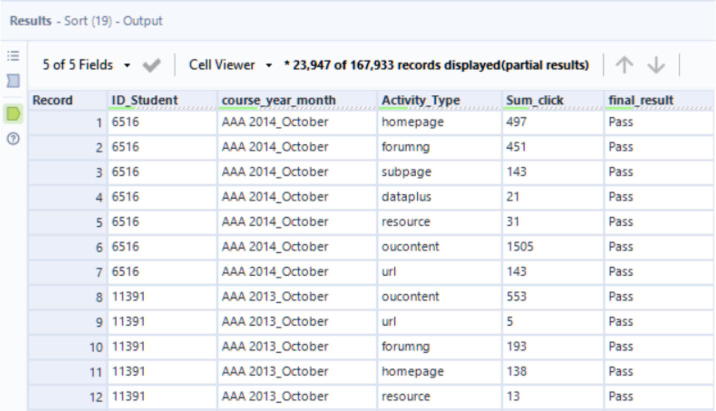
5 of 5 Fields · Cell Viewer · * 23,689 of 8,754,616 records displayed(partial results)

Record	id_student	course_year_month	activity_type	sum_click	final_result
1	349182	DDD 2013_October	subpage	1	Fail
2	349182	DDD 2013_October	url	1	Fail
3	349182	DDD 2013_October	subpage	2	Fail
4	349182	DDD 2013_October	subpage	2	Fail
5	349182	DDD 2013_October	subpage	1	Fail
6	349182	DDD 2013_October	oucontent	11	Fail
7	349182	DDD 2013_October	oucontent	4	Fail
8	349182	DDD 2013_October	oucontent	2	Fail
9	349182	DDD 2013_October	oucontent	5	Fail
10	349182	DDD 2013_October	oucontent	1	Fail
11	349182	DDD 2013_October	oucontent	2	Fail
12	349182	DDD 2013_October	oucontent	1	Fail

To reduce the number of records, the fields: id_student, course_year_month, and activity_type were grouped while the function "sum" was used for sum_clicks.

Then, the table was sorted by ID_Student field.

Result: Table with five fields and 167,933 records



Results - Sort (19) - Output

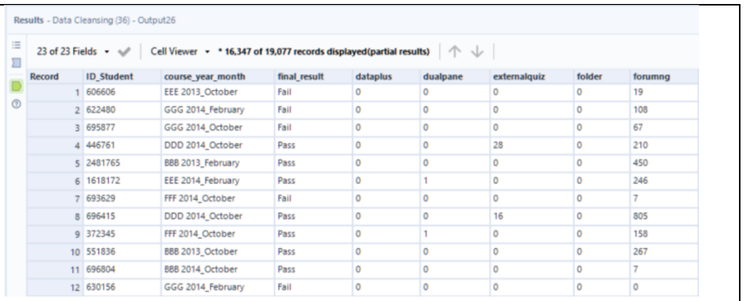
5 of 5 Fields · Cell Viewer · * 23,947 of 167,933 records displayed(partial results)

Record	ID_Student	course_year_month	Activity_Type	Sum_click	final_result
1	6516	AAA 2014_October	homepage	497	Pass
2	6516	AAA 2014_October	forumng	451	Pass
3	6516	AAA 2014_October	subpage	143	Pass
4	6516	AAA 2014_October	dataplus	21	Pass
5	6516	AAA 2014_October	resource	31	Pass
6	6516	AAA 2014_October	oucontent	1505	Pass
7	6516	AAA 2014_October	url	143	Pass
8	11391	AAA 2013_October	oucontent	553	Pass
9	11391	AAA 2013_October	url	5	Pass
10	11391	AAA 2013_October	forumng	193	Pass
11	11391	AAA 2013_October	homepage	138	Pass
12	11391	AAA 2013_October	resource	13	Pass

In the final step, using the CrossTab tool, I pivoted the table's orientation by moving vertical data onto the horizontal axis.

The data corresponding to the learner's trajectories through the VLE are shown on which each row

Result: Table with 23 fields and 19,077 records and each column corresponds to a particular resource within the VLE.



Results - Data Cleansing (36) - Output26

23 of 23 Fields ▾ ✓ | Cell Viewer ▾ *** 16,347 of 19,077 records displayed(partial results)**

Record	ID_Student	course_year_month	final_result	dataplus	dualpane	externalquiz	folder	forumng
1	606606	EEE 2013_October	Fail	0	0	0	0	19
2	622480	GGG 2014_February	Fail	0	0	0	0	108
3	695877	GGG 2014_October	Fail	0	0	0	0	67
4	446761	DDD 2014_October	Pass	0	0	28	0	210
5	2481765	BBB 2013_February	Pass	0	0	0	0	450
6	1618172	EEE 2014_February	Pass	0	1	0	0	246
7	693629	FFF 2014_October	Fail	0	0	0	0	7
8	696415	DDD 2014_October	Pass	0	0	16	0	805
9	372345	FFF 2014_October	Pass	0	1	0	0	158
10	551836	BBB 2013_October	Pass	0	0	0	0	267
11	696804	BBB 2014_October	Pass	0	0	0	0	7
12	630156	GGG 2014_February	Fail	0	0	0	0	0