

Report Individual Project BSD 1323

4a. Title and motivation of your project topic.

Title: Number of government school teachers Distribution in Malaysia from 2017 to 2018.

Motivation: The data projects start with data, and the work starts with Data Exploration. By performing data exploration, I aim to get familiarized and to understand the data, discovering interesting facts and trends such as corruption in the data, correlations, class imbalance. Finally, I wish to extract the insight of this dataset that is ready to use.

4b. Details explanation of your dataset.

This dataset contains 7 data fields and the number of recorded data is 1748.

- 1 data value data field which is Year that contains the years 2017 and 2018.
- 4 string value data fields including gender, district education office, school stage and school type. The gender data field contains male and female, district education office data field contains 146 different office locations, school stage contains primary school and secondary school while the school type data field contains academic and vocational college.
- 1 geographic values data field is about state data field that contains 13 states and 3 federal territories in Malaysia including Johor, Pahang, Negeri Sembilan ,Melaka ,Perlis ,Pulau Pinang , Perak, Kelantan ,Terengganu, Selangor ,Sabah , Sarawak, Kedah, Wilayah Persekutuan Kuala Lumpur ,Wilayah Persekutuan Labuan ,Wilayah Persekutuan Putra Jaya.
- 1 numerical value data field which is number of teacher .

4c. Details analysation of each visualization and dashboard.

VIZ	VIZ TITLE	VIZ TYPE	ANALYSIS OF VISUALISATION
1	Number of teachers by state	Circle view	-The highest number of teacher recorded is State Selangor with total 122,141 teachers, second highest by state Johor with total 97,465 and third highest is state Sabah with total 81,634. -The lowest number of teacher recorded is state Wilayah Persekutuan Labuan with total 2,756 teachers.
2	Number of teachers by state in <School stage>	Filled Map	-The highest number of teachers recorded in primary school is state Selangor (68,113 teachers) while in secondary school is also state Selangor (54,008 teachers). -The lowest number of teachers recorded in primary school is state Wilayah Persekutuan Labuan (1,413 teachers) while in secondary school is also state Wilayah Persekutuan Labuan (1,343 teachers). -The number of teachers recorded in primary school is generally higher than secondary school in all state of Malaysia.

3	Percentage of number of teacher by primary school and secondary school in <State>	Donut Chart	<p>-The highest percentage of number of teachers by primary school is 61.32% recorded in Sarawak while the lowest is 49.6491% recorded in Perlis.</p> <p>- The highest percentage of number of teachers by secondary school is 50.3509% recorded in Perlis while the lowest is 38.68% recorded in Sarawak.</p> <p>-The percentage of number of teachers by primary school is generally all higher than secondary school except for perlis state.</p>
4	Number of teacher & cumulative % of Total Number of Teachers in District Education Office	Cumulative Bar Chart	-The top 3 district education office with highest number of teachers are Temerloh , Petaling Perdana and Hulu Langar
5	Percent Difference from Previous Year for Teachers by <State>	Highlight table	<p>-In primary school, the highest increase in number of teachers from 2017 to 2018 is 22.32% in Wilayah Persekutuan Putrajaya while the highest decrease number of teachers from 2017 to 2018 is 2.38% in Sarawak.</p> <p>- In secondary school, the highest increase in number of teachers from 2017 to 2018 is 11.77% in Wilayah Persekutuan Putrajaya while the highest decrease number of teachers from 2017 to 2018 is 0.58% in Kedah.</p>
6	Number of teachers by different district education office of <State>	Treemaps	<p>-The highest number of teachers of district education office in every state are recorded including Johor bahru(Johor), Kuala Muda (Kedah), Kota Bahru(Kelantan), Melaka tengah(Melaka), Seremban(Negeri Sembilan), Kuantan(Pahang), Kinta Utara(Perak), Temerloh(Perlis), W.P.Kuala Lumpur,W.P.Labuan ,W.P.Putrajaya), Daerah Timor Laut (Pulau Pinang), Kota Kinabalu (Sabah), Kuching (Sarawak), Petaling Perdana(Selangor), Kuala Terengganu(Terengganu).</p> <p>-The state Sarawak has highest district education office (30) while the state W.P.Labuan ,W.P.Putrajaya and Perlis has lowest with only one district education office .</p>
7	Number of Teachers by School Stage and School Type in <State>	Packed Bubble	<p>-The number of teachers of primary school is greater than secondary school in all state.</p> <p>-Secondary school have 2 school type which is academic and vocational college .</p> <p>-Under secondary school, the number of teachers of academic type is higher than vocational college type in all state.</p>

8	Number of Teachers by gender in all state of Malaysia	Stacked Bar Chart	<ul style="list-style-type: none"> -The highest number of teachers by gender comes from the state Selangor. -Female teachers top the number of teachers for all state compared to male teachers. -The lowest number of teachers by gender comes from the state W.P.Labuan.
9	Number of Teachers by gender with school type from different school stage	Side by side Bar chart	<ul style="list-style-type: none"> -The number of female teachers is all higher than male teachers in all school type and school stage. -The highest number of female teachers recorded is primary school (320,510),then followed by academic type of secondary school (247,588) and the lowest is vocational college (8,848). - The highest number of male teachers recorded is primary school (139,803),then followed by academic type of secondary school (101,490) and the lowest is vocational college (7,180).
10	Number of Teachers by gender in different state from 2017 to 2018	Multiple Continuous Line Chart	<ul style="list-style-type: none"> -Most of the female teachers slightly increase from 2017 to 2018 in all states of Malaysia except for Negeri Sembilan, Perak, W.P.Kuala Lumpur. -Most of the male teachers slightly decrease from 2017 to 2018 in all states of Malaysia except for Johor, Selangor, W.P.Kuala Lumpur.

Dashboard	Dashboard Title	Analysis of Dashboard
Main	Number of Teachers distribution	<ul style="list-style-type: none"> - There are total 3 different data visualisation including in main dashboard to show the relationship between one and another. -The circle view chart is used as filter to control the other two data visualization. -The information of each state is presented by clicking the icon of state in circle view chart. -The highest number of teacher are distributed in state Selangor while the lowest are distributed in state W.P.Labuan in both primary and secondary school in Malaysia. -The percentage of number of teachers in secondary school is lower than primary school except for perlis. -There are two quick button can enter to other 2 dashboard for more detail information.
2	Teacher Distribution Description	<ul style="list-style-type: none"> - There are total 4 different data visualisation including in dashboard 2 to show the relationship between one and another. -The highlight table is used as filter to control the other two data visualization except for cumulative bar chart. -The detail information of visualization that showing state is presented by clicking the table of state column in highlight table. - The top 3 district education office with highest number of teachers are Temerloh , Petaling Perdana and Hulu Langar. - The number of teachers of primary school is greater than secondary school and the number of teachers of academic type is higher than vocational college type in every state under secondary school. -There is one quick button can return to main dashboard.
3	Gender of Teacher Distribution Detail	<ul style="list-style-type: none"> - There are total of 3 different data visualisation including in the main dashboard to show the relationship between one and another. - Female teachers top the number of teachers for all states, school types and school stages compared to male teachers. - The highest number of teachers by gender comes from the state Selangor while the lowest number of teachers by gender comes from the state W.P.Labuan. -Most of the female teachers slightly increase from 2017 to 2018 in all states of Malaysia except for Negeri Sembilan, Perak, W.P.Kuala Lumpur. -Most of the male teachers slightly decrease from 2017 to 2018 in all states of Malaysia except for Johor, Selangor, W.P.Kuala Lumpur. -There is one quick button can return to main dashboard.

4d . Concluding remark.

In the years 2017 and 2018, the number of teachers distributed in Selangor state is the highest while W.P.Labuan is the lowest. The number of teachers in primary school is higher than in secondary school in all states of Malaysia except for Perlis. In secondary school, most of the teachers are distributed in academic type as compared to vocational college type. The state of Sarawak consist of the highest number district education office but the district education office in Terengganu has the highest number of teachers. Female teachers top the number of teachers for all states, school types and school stages compared to male teachers. Majority of the distribution of female teachers in all states slightly increase from 2017 to 2018 while majority of the distribution of male teachers in all states slightly decrease from 2017 to 2018.

CLO	Description	PLO mapping	Percentage	Marks
CLO3	Display a powerful data visualization, report, dashboard or stories in solving various applications using appropriate software.	PLO3: Functional work skills with focus on Practical, and Digital skills P4: Mechanism	10%	40

CRITERIA	LEVEL OF ACHIEVEMENT						WEIGHTAGE	SCORE
	0	1 Inadequate	2 Emerging	3 Developing	4 Good	5 Excellent		
Theory/ Knowledge on data visualization	No theoretical knowledge on data visualization observed	Very little knowledge observed on data visualization or some information is incorrect	Some knowledge or information on data visualization observed but missing all major points	Some knowledge or information on data visualization observed but still missing some major points	Good knowledge on data visualization observed, missing some minor points	Excellent knowledge on data visualization observed; provides all necessary background principles	1	
Theory/ Knowledge on advanced dashboard	No theoretical knowledge on advanced dashboard observed	Very little knowledge observed on advanced dashboard or some information is incorrect	Some knowledge or information on advanced dashboard observed but missing all major points	Some knowledge or information on advanced dashboard observed but still missing some major points	Good knowledge on advanced dashboard observed, missing some minor points	Excellent knowledge on advanced dashboard observed; provides all necessary background principles	1	
Efficiency/ Assembly/ Tidiness	Failed to demonstrate the given task	Not efficiently, effectively and neatly demonstrated the given task	Partly efficient, but not effectively and neatly demonstrated the given task	Efficiently, but not effectively and neatly demonstrated the given task	Efficiently and effectively but not neatly demonstrated the given task	Efficiently, effectively and neatly demonstrated the given task	1	
Interactive Data Visualization Techniques	Failed to demonstrate the given task	Inappropriate interactive data visualization techniques are demonstrated	Partly correct interactive data visualization techniques are demonstrated, with partly valid data	Correct interactive data visualization techniques are demonstrated, with partly valid data	Good interactive data visualization techniques are demonstrated, with valid but not completely accurate data	Competent interactive data visualization techniques are demonstrated, with valid and accurate data	1	

Advanced Dashboard Techniques & Data Validation	Failed to demonstrate the given task	Inappropriate advanced dashboard techniques are demonstrated	Partly correct advanced dashboard techniques are demonstrated, with partly valid data	Correct advanced dashboard techniques are demonstrated, with partly valid data	Good advanced dashboard techniques are demonstrated, with valid but not completely accurate data	Competent advanced dashboard techniques are demonstrated, with valid and accurate data	2	
Results (the advanced dashboard)	Not submitting Report/ No discussion on this topic	Lack of results/ zero readability of the result. Poor originality, taking credits of others work	Partly complete result	Result presented but at low readability/ some result presented. Reader has to guess some of the missing information. Less originality, copy paste here and then	Clear, neat presentation. All required results are presented. Readability. Complete with labels, title, axes, etc.	Very Clear, neat presentation. All required results are presented. High readability. Complete with labels, title, axes, etc.	2	
						TOTAL (40)		