

# ETF5922 & ETX2250

## Assignment Project Exam Help

Data Visualisation  
<https://tutorcs.com>  
and Analytics  
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Presented by Klaus Ackermann



# Scatter Plot – 3<sup>rd</sup> dimension by colour

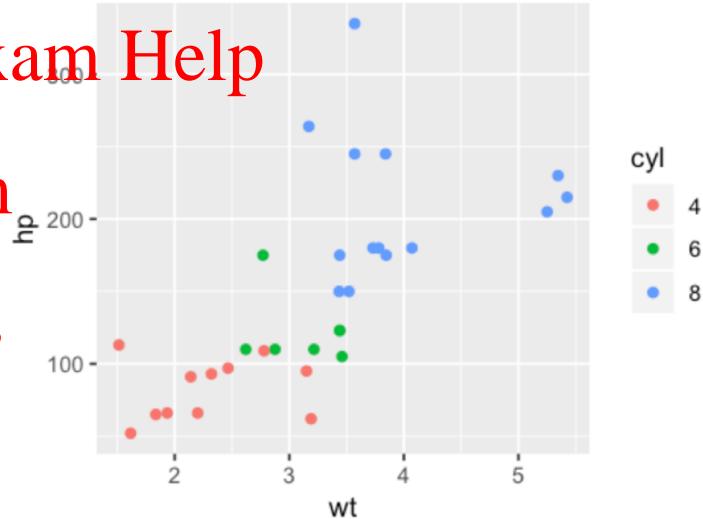
- Add additional information by adding colours in the scatter plot
- You can see on the right that cars with more HP (horse power) and WT (Weight) have more cylinder

```
mtcars %>%
  mutate(cyl=as.factor(cyl)) %>%
  ggplot(data = .,
         aes(x = wt,
              y = hp,
              colour = cyl)) +
  geom_point ()
```

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# Scatter Plot – add text

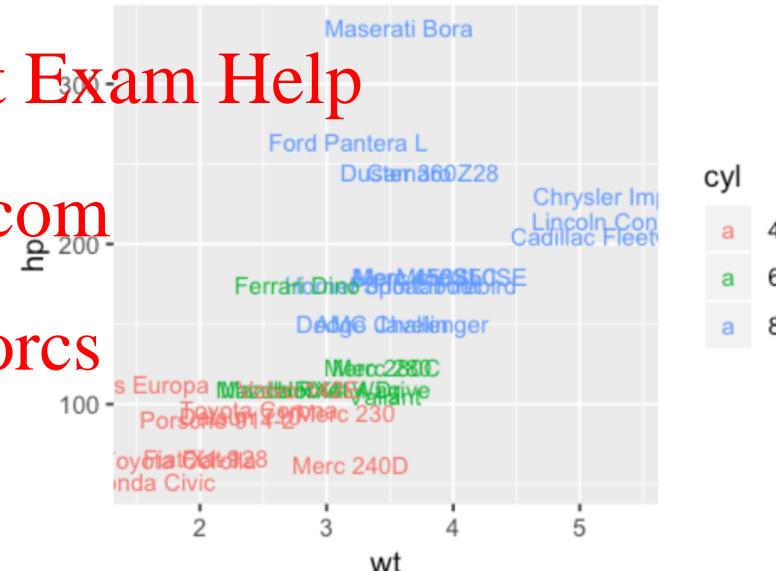
- Add additional information by adding colours in the scatter plot and text

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- Can get very messy -> Let us try interactive graphs today

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```
mtcars %>%
  rownames_to_column("Model") %>%
  mutate(cyl=as.factor(cyl)) %>%
  ggplot(data = .,
         aes(x = wt,
              y = hp,
              colour = cyl)) +
  geom_text(aes(label=Model),
            size=3)
```



# Introduction to SQL

- Structured English Query Language: SEQUEL  $\Rightarrow$  SQL
- Common way how data is stored in any business. We will focus only on simple reading and data manipulation to make you ready for the workforce. E.g. You can have the best visualisation and analytics skills, but will not get the job if you cannot interact with the business data environment.
- Other courses focus on database design

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# Introduction to SQL: SELECT

- Basic Structure:

SELECT <Attribute>

FROM <Table>

WHERE <Condition>

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- Attributes: List of all attributes you want to display
- Table: The name of the table
- Condition: Each returned row (or tuple) needs to satisfy this
- E.g. SELECT personid, name as shortname from teachers;

# Introduction to SQL: ORDER BY

```
SELECT Assignment Project Exam Help  
      personid,  
      age,  
      name as shortname  
  FROM teachers https://tutorcs.com  
 ORDER BY WeChat: cstutorcs  
      age;
```

# Introduction to SQL: GROUP BY

```
SELECT  
    name,  
    avg(age)  
FROM  
    teachers  
GROUP BY name;
```

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- Advantage: If the data is too large to fit into memory, the aggregation happens in the database before it is transferred to R for plotting.
- Standard Aggregate Functions: avg, max, min, count, sum

# Workshop 2



- Part 1 will introduce colours and interactive visualisation. The second part is about SQL. We are here to help you.

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