Simple markdown exercise

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Good afternoon!

You can type in **bold** or *italic*

You can put an **entire sentence in bold** *or italic*

If you want to type a Header

1 First header

or

1.1 Insert a sub-section

1.1.1 Sub sub-section

2 Insert

2.1 Your first ***link***

This is the text you will see

or **using bold**

You can also use reference links to move to ***my website*** or to *Universidade do Minho*

3 How to use images and define size

3.1 First using a relative size

or a **fixed size**

You can also use an image from a link:

When writing your document you can quote using carat (>). This is called a block quote. The following text was generated using Lorem Ipsum.

> Tuas vocat velantibus rogos, quem tamen foedere **laetabere bipennifer** nulla se **camini**. In **forsitan**, in **verti iam** submissaeque faciam adversum et quae. Tu ille postquam interdum,

Figure 1: Universidade do Minho

> est sed Britannos, dedecus solae pectore at modo in adeste vitta tantummodo ingrato. Caedis numina, tonitruque iugum speciem corpore, leves hunc Zancle auferat umero foribusque cursus negate inhaerentem Styga Hebre meosque?
>
> Spes speciosoque dixit ferinae agros simulatque domum alimentaque pabula claro; a costis, a nec captus Aquilone. Pharonque donec, modo suo vires arcanis, quem illis Vesta quae dedit. Pervenerat placat lenta; sine finxit, tantum pater, tamen fila sedibus, sonent. Nempe caedit quas fundunt optima sua vultusque remolliat et habet tendebat Hesperidas: corniger. *Digna* spatium effugere magne, a pectora hospes volant frena crinis resonant protinus; morte Hippomenen.

Another markdown element you may want to use are **lists**.

4 Course Outline

as an *ordered list*

1. Markdown and Pandoc
2. Create a markdown document and run code
3. Develop a report
4. Publish the report

or just as bullets

- Markdown and Pandoc
- Create a markdown document and run code

where you may need additional depth. Use tabulations

- Markdown and Pandoc
  - Create a markdown document and run code
- Develop a report
  - Publish the report

A more complex example

5 LITERATE PROGRAMMING IN R MARKDOWN

- Date: 27 & 29 October | 17h00-20h00
- Delivered by: Miguel Portela, University of Minho

  Literate programming refers to melding a descriptive narrative and computer code into a single document, from which both human-friendly documentation and computer readable files can be created. Your work should be transparent, easy to update, easy to maintain, and easy to replicate. Literate programming saves time and effort, so we can dedicate more time doing research. Literate programming is also useful for teaching.

Course Outline

```
1.  Markdown and Pandoc
2.  Create a markdown document and run code
```

```
3.  Develop a report
4.  Publish the report
```

References

- Xie, Y., Allaire, J.J. and Grolemund, G., 2018. R markdown: The definitive guide. CRC Press. (https://bookdown.org/yihui/rmarkdown/), "*Course 5: Web-based tools for data analysis: JupyterLab environment and workflow optimization*"
- The Jupyter Notebook: https://jupyter-notebook.readthedocs.io/
- Project Jupyter

6 Paragraphs & Tables

6.1 Using a double space at the end of the sentence

Phaethon Delphos mea gravis excipiunt stabat: quem aqua taceam Phoebo, vir aratri, Ulixes haec perque. Nactus dempserat sui regnat enim, acta stet Areos praesagaque in iacent? Fuerant crescentem vinci clamat.

6.2 Add footnotes

This is a footnote.[1]

6.3 This is a table

Table 1: Sample table

Tables	Are	Cool
Var 1 is	Left-Aligned	$1271
Var 2 is	Centered	$13
Var 3 is	Right-Aligned	$7

7 The YAML concept

You can add information to your document, like title, author, etc., using YAML.

> YAML: YAML Ain't Markup Language
>
> What It Is: YAML is a human friendly data serialization standard for all programming languages.

The following lines are comments so *pandoc* will not compile them. You can use standard HTML tags to comments out sections of your code. To see their purpose add them to the beginning of the text.

7.1 Citations

Lorem markdownum medulla: Est hanc instrumenta sibi; premit opem Dianae, *ubi India* vocesque prodamne, quamvis? Et esse. Quod molire auxiliumque caelumque tertia hospes, fecerat sermonibus prensamque mortale summa, iubeatis coercet iugulum, **et**. For futher discussion (see Solow, 1952:pp.31–32).

8 Equations

You can write inline equations as $y_i = \alpha_0 + \tau x_i + \psi_i$ or numbered equations,

[1] Ad remorum vestem pater victor Megareus lacrimas adsiduae regina sequenti Invidiae, ille tum aliquid. Locus uno quid curruque dixit, me regis, deum **iamque**, et ripas validum ubi! Auras amores quam feritatis apros demite ademptas est **tanto**!

$$y_{it} = \beta_0 + \beta_1 x_{it} + \eta_i + \varepsilon it \tag{1}$$

9 Pandoc's manual

For additional insights see MacFarlane (2020).

10 Build your report

The average log wage in our data is 1.7, while the sum is 13.

Table 2: Summary table with stargazer

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
idcode	28,534	2,601.284	1,487.359	1	1,327	3,881	5,159
year	28,534	77.959	6.384	68	72	83	88
birth_yr	28,534	48.085	3.013	41	46	51	54
age	28,510	29.045	6.701	14.000	23.000	34.000	46.000
race	28,534	1.303	0.482	1	1	2	3
msp	28,518	0.603	0.489	0.000	0.000	1.000	1.000
nev_mar	28,518	0.230	0.421	0.000	0.000	0.000	1.000
grade	28,532	12.533	2.324	0.000	12.000	14.000	18.000
collgrad	28,534	0.168	0.374	0	0	0	1
not_smsa	28,526	0.282	0.450	0.000	0.000	1.000	1.000
c_city	28,526	0.357	0.479	0.000	0.000	1.000	1.000
south	28,526	0.410	0.492	0.000	0.000	1.000	1.000
ind_code	28,193	7.693	2.994	1.000	5.000	11.000	12.000
occ_code	28,413	4.778	3.065	1.000	3.000	6.000	13.000
union	19,238	0.234	0.424	0.000	0.000	0.000	1.000
wks_ue	22,830	2.548	7.294	0.000	0.000	0.000	76.000
ttl_exp	28,534	6.215	4.652	0.000	2.462	9.128	28.885
tenure	28,101	3.124	3.751	0.000	0.500	4.167	25.917
hours	28,467	36.560	9.870	1.000	35.000	40.000	168.000
wks_work	27,831	53.989	29.032	0.000	36.000	72.000	104.000
ln_wage	28,534	1.675	0.478	0.000	1.361	1.964	5.264

Table 2 shows full data's summary statistics.[2] `stargazer()` is and excellent solution to export outputs.

Table 3: Short statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
tenure	28,101	3.124	3.751	0.000	0.500	4.167	25.917
ln_wage	28,534	1.675	0.478	0.000	1.361	1.964	5.264

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Wed, Oct 28, 2020 - 23:39:05

See Figure 2.

An alternative could be to export the figure and include it as an image.

[2] You can also produce statistics for a sub set of variables; see Table 3.

Table 4:

idcode	year	birth_yr	age	race	msp	nev_mar	grade	collgrad	not_smsa	c_city	south	inc
1	70	51	18	2	0	1	12	0	0	1	0	
1	71	51	19	2	1	0	12	0	0	1	0	
1	72	51	20	2	1	0	12	0	0	1	0	
1	73	51	21	2	1	0	12	0	0	1	0	

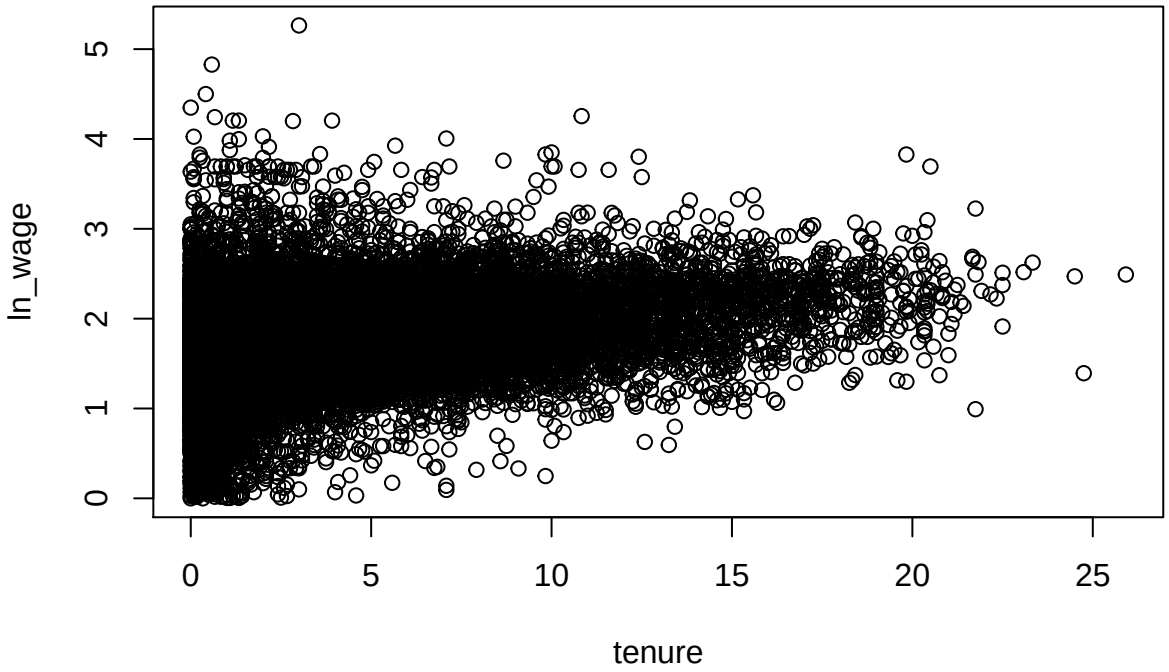

Figure 2: Log wages vs. tenure

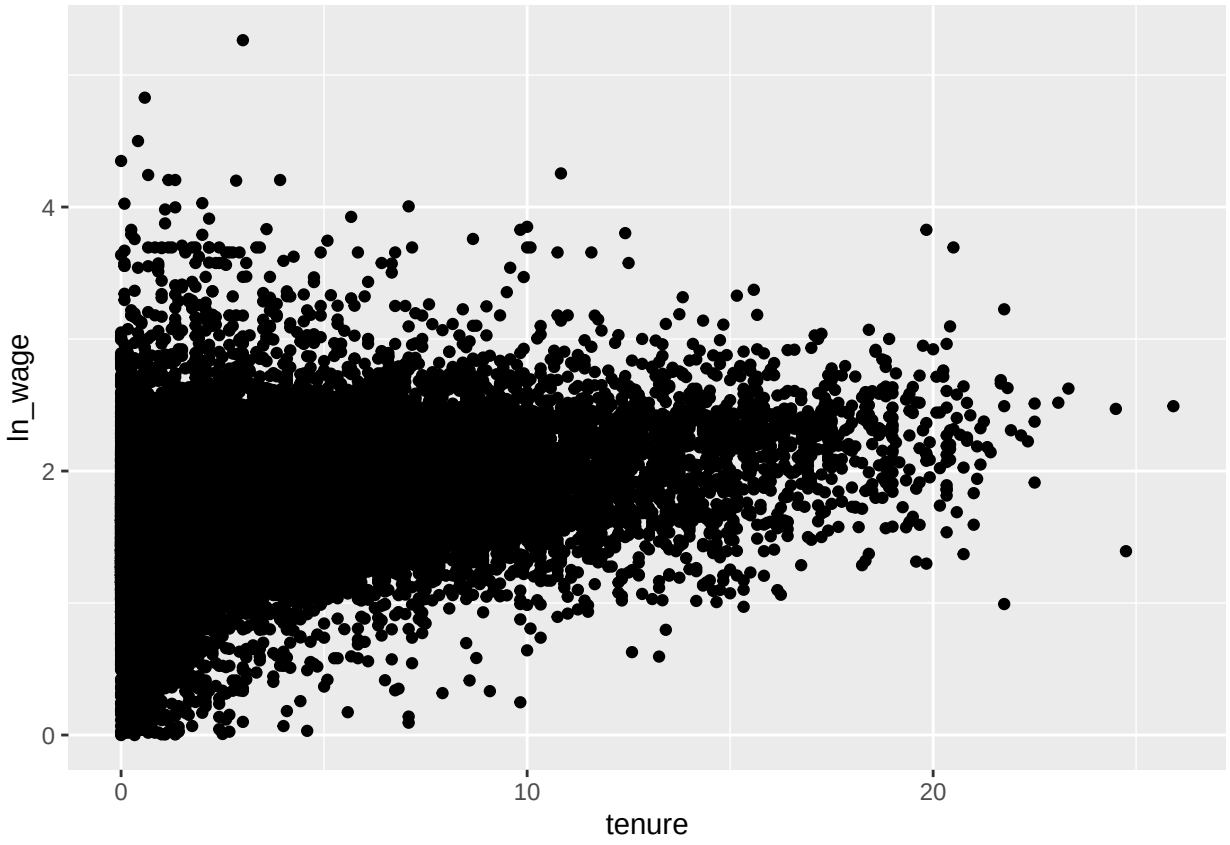

Figure 3: Alternative solution

```
## Saving 6.5 x 4.5 in image
```

See Figure 3.

We could also include the figure in the following way

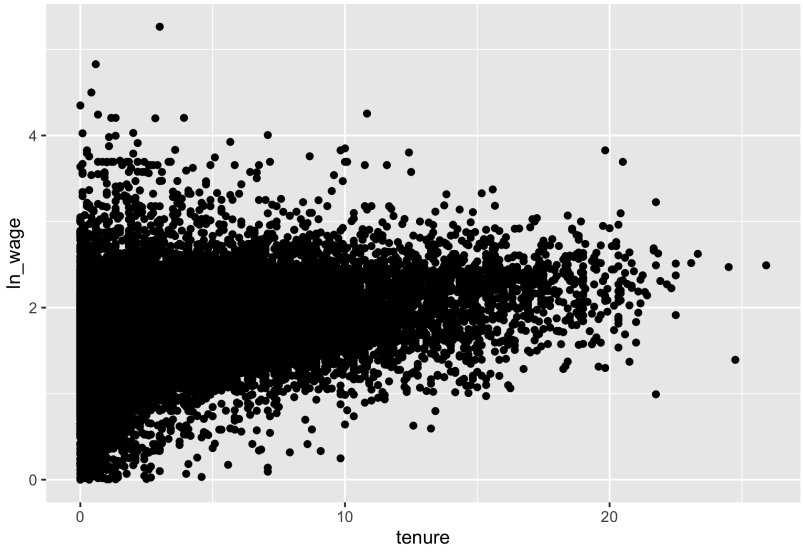

Figure 4: Wages vs. tenure

We couls as well include regression analysis.

Table 5: First set of regressions

	Dependent variable:	
	ln_wage	
	M1	M2
	(1)	(2)
TENURE	0.047***	0.036***
	(0.001)	(0.001)
UNION		0.168***
		(0.007)
Constant	1.530***	1.573***
	(0.003)	(0.005)
Observations	28,101	19,010
R^2	0.137	0.141
Adjusted R^2	0.137	0.141
Residual Std. Error	0.444 (df = 28099)	0.433 (df = 19007)
F Statistic	4,473.232*** (df = 1; 28099)	1,564.350*** (df = 2; 19007)
Note:	Standard errors in parentheses.	

The estimated return to tenure is 16.8%. The R^2 is 0.14.

We can write the estimated equation

$$\hat{y}_i = 1.6 + 0.04 \times tenure_i + 0.17 \times union_i$$

References

MacFarlane, J. (2020) Pandoc User's Guide. *Link: https://pandoc.org/MANUAL.pdf.*

Solow, R. (1952) On the structure of linear models. *Econometrica.* 20 (1), 29–46.