UBD Beamer Theme using RMarkdown

An example presentation document with R code

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Overview

Introduction

The UBD Beamer Theme is a modern and minimal theme designed for getting information across in a clean and uncluttered manner.

This theme is based on the Saarland Beamer Theme, with its logos and fonts changed, and colour scheme adapted to UBD's official brand colours.

Slide full of lists

Universiti Brunei Darussalam (UBD; translation University of Brunei Darussalam; Jawi: يونيبرسيتي بروني دارالسلام) is the first university in Brunei.

- UBD in figures
  - **Established**: 1985
  - **Medium of instruction**: English
  - **Academic faculties**: 9
  - **Research Institutes**: 7
  - **Student enrolment**: 3,137 (in 2015, approx.)
- History
  - **1985**: UBD established, first campus in Gadong
  - **1995**: UBD moved to Tungku Link
  - **2009**: Introduction of GenNEXT Programme
  - **2011**: Commencement of the first Discovery Year programme
- Credits: `https://ubd.edu.bn/` and Wikipedia

Blocks

Standard Block

This is a standard block using the `block` environment.

Example Block

This is an example block using the `exampleblock` environment.

Alert Block

This is an alert block using the `alertblock` environment.

Alternative Block

This is an alternatively-coloured block using the `altblock` environment.

Quotation

Archimedes will be remembered when Aeschylus is forgotten, because languages die and mathematical ideas do not. "Immortality" may be a silly word, but probably a mathematician has the best chance of whatever it may mean.

— G. H. Hardy in *A Mathematician's Apology, 1941*

Two columns

We can also add two columns in the slides.

This is the first column. In this column, we can also add a block for instance.

Block

I am a block in a column.

- In this column,
- we just add the
- bullet points.

Colour palette

- Blues: `ubdblue` a.k.a. Y In Mn Blue (#325494)
- Teals: `ubdteal` a.k.a. Medium Aquamarine (#58DDB3)
- Yellows: `ubdyellow` a.k.a. Maize Crayola Red (#F5C946)
- Alerted text: `ubdred` a.k.a. Upsdell Red (#B10F2E)
- Normal text: `ubdblack` a.k.a. Dark Sienna (#230C0F)
- Grays: `gray` a.k.a. Spanish Gray (#999999)

`https://coolors.co/palette/325494-58ddb3-f5c946-b10f2e-230c0f`

Fonts

The font is left to the default beamer font (which I believe is the Computer Modern). In order to get the sans-serif fonts for the mathematics (including the greek letters), the following lines are called in the `.sty` file:

```
\usepackage{cmbright}
\usefonttheme{professionalfonts}
```

So compiling using pdfLaTeX should get the desired output.

On the other hand, compiling with XeLaTeX seems to mess up the fonts, probably because legacy fonts are loaded. There is a switch in the `.sty` file which loads `fontspec` package to fix this (kind of?).

Mathematics

Let X be a simple random variable defined on $(\Omega, \mathcal{F}, \mathbb{P})$ that takes on finitely many values $\{x_1, \ldots, x_n\}$. The expectation of X, $\mathrm{E}(X)$, is the Lebesgue integral of X with respect to $\mathbb{P}$,

$$\mathrm{E}(X) := \int X(\omega)\, \mathrm{d}\mathbb{P} = \sum_{i=1}^{n} x_i\, \mathbb{P}(\omega \in A_i),$$

where $A_i = \{\omega \in \Omega \mid X(\omega) = x_i\}$.

$$AaBbCcDdEeFfGgHhIiJjKkLlMmNnOoPpQqRrSsTtUuVv$$
$$WwXxYyZz$$

$$1234567890$$

$$\alpha\beta\Gamma\gamma\Delta\delta\epsilon\varepsilon\zeta\eta\Theta\theta\vartheta\iota\kappa\varkappa\Lambda\lambda\mu\nu\Xi\xi\Pi\pi\varpi\rho\Sigma\sigma\tau\Upsilon\upsilon\Phi\phi\varphi\chi\Psi\psi\Omega\omega$$

$$\prod \oint \bigoplus \bigotimes \bigcup \bigcap$$

Theorems et al.

Definition 1 (Prime numbers)

A prime number is a natural number greater than 1 that is not a product of two smaller natural numbers.

Theorem 2 (Infinitude of primes)

There are an infinite number of prime numbers.

Proof.

Suppose that there exist only a finite number of primes, $p_1, \ldots, p_n$, say. The number

$$N = 1 + p_1 \cdots p_n$$

is divisible by some prime p. But p cannot be any of $p_1, \ldots, p_n$, since the latter all leave remainder 1 on dividing N. This contradicts our assumption that $p_1, \ldots, p_n$ is the complete list of primes. ■

Example blocks

Example blocks are continuously numbered (using the `example` environment).

Example 3 (Examples of prime numbers)

The numbers

- 2;
- 3;
- 5; and
- 7

are examples of prime numbers.

Example 4 (Examples of non-prime numbers)

Since $4 = 2 \times 2$, it is not a prime.

Citations

The importance of grounding one's self in elementary probability theory and mathematical statistics cannot be overstated. Here are some excellent fundamental textbooks every student of statistics should read: Casella and Berger (2002), Pawitan (2001), and Wasserman (2004).

It is highly suggested to use pandoc's way of generating bibliographies (see here) rather than using Biblatex. This footnote was created using the custom `\blfootnote{}` command.

Syntax highlighting

```
f <- function(x) {
  # Check small prime
  if (x > 10 || x < -10) {
    stop("Input too big")
  } else if (x %in% c(2, 3, 5, 7)) {
    cat("Input is prime!\n")
  } else if (x %% 2 == 0) {
    cat("Input is even!\n")
  } else if (x %% 2 == 1) {
    cat("Input is odd!\n")
  }
}
```

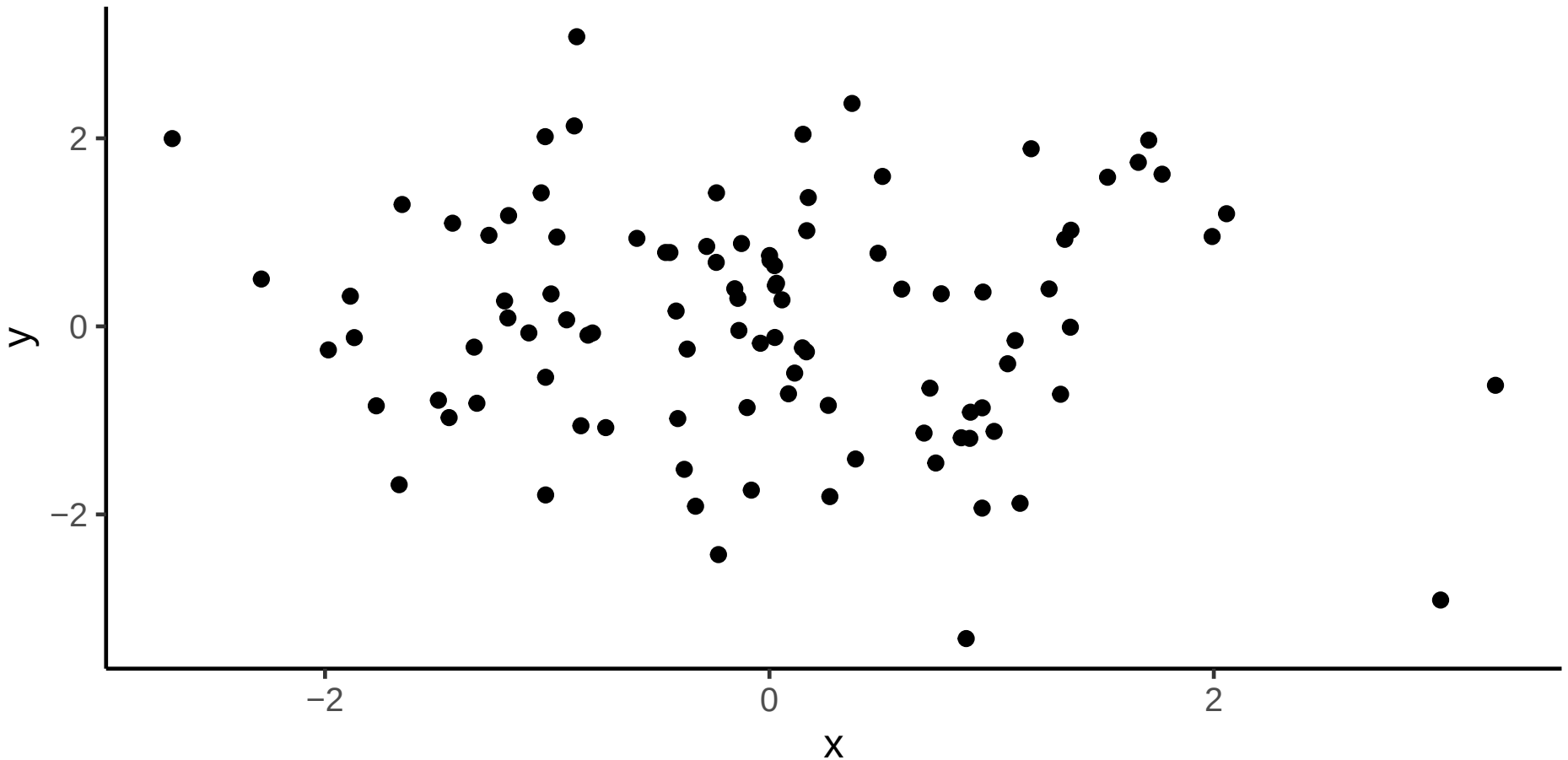
Slide with R Output

```
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

Slide with Plot

```
ggplot(tibble(x = rnorm(100), y = rnorm(100)), aes(x, y)) +
  geom_point()
```



Conclusion

To use this theme, download and place the following files and folders into your working directory:

1. `beamerthemeUBD.sty` (the beamer theme)
2. `ubd_beamer_rmd.tex` (the Rmd beamer template)
3. `luafilters/` (the lua filters in the folder)
4. `ubd_brand.pdf` (the university logo)

To start, you may use the `slides_rmd.Rmd` as a guide and edit from there.

For non-Rmd beamer

All you need is 1. and 4. (the Rmd template and lua filters are not necessary). See the file `minimal_example.tex`.

End

Thank you!

References

- Casella, George and Roger L. Berger (2002). *Statistical Inference*. 2nd ed. Pacific Grove, CA: Duxbury. ISBN: 978-0-534-24312-8.
- Pawitan, Yudi (2001). *In All Likelihood*. Statistical Modelling and Inference Using Likelihood. Oxford University Press. ISBN: 978-0-19-850765-9.
- Wasserman, Larry (2004). *All of Statistics. A Concise Course in Statistical Inference*. New York: Springer-Verlag. ISBN: 978-0-387-40272-7. DOI: 10.1007/978-0-387-21736-9.

Backup slides

Often times in a presentation, we don't have enough time to present everything, but it's a good idea to prepare backup slides in case the audience asks about it afterwards.

We can achieve that using the `\appendix` usage.

Backup topic 1

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Backup topic 2

A block

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.