Package 'viridis'

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Type Package

Title Default Color Maps from 'matplotlib'

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Description Port of the new 'matplotlib' color maps ('viridis' - the default -, 'magma', 'plasma' and 'inferno') to 'R'. 'matplotlib' <http://matplotlib.org/> is a popular plotting library for 'python'. These color maps are designed in such a way that they will analytically be perfectly perceptually-uniform, both in regular form and also when converted to black-and-white. They are also designed to be perceived by readers with the most common form of color blindness.

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LazyData TRUE

Encoding UTF-8

Depends R (>= 2.10)

Imports stats, grDevices, ggplot2 (>= 1.0.1), gridExtra

Suggests hexbin (>= 1.27.0), scales, MASS, knitr, dichromat, colorspace, rasterVis, httr, mapproj

VignetteBuilder knitr

URL https://github.com/sjmgarnier/viridis

BugReports https://github.com/sjmgarnier/viridis/issues

RoxygenNote 5.0.1

NeedsCompilation no

Author Simon Garnier [aut, cre], Noam Ross [ctb, cph] (Continuous scale), Bob Rudis [ctb, cph] (Combined scales)

Repository CRAN

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R topics documented:

`scale_color_viridis` *Viridis color scales*

Description

Uses the viridis color scale.

Usage

```
scale_color_viridis(..., alpha = 1, begin = 0, end = 1,
  discrete = FALSE, option = "D", direction = 1)

scale_fill_viridis(..., alpha = 1, begin = 0, end = 1, discrete = FALSE,
  option = "D", direction = 1)
```

Arguments

`...`	parameters to `discrete_scale` or `scale_fill_gradientn`
`alpha`	pass through parameter to `viridis`
`begin`	The (corrected) hue in [0,1] at which the viridis colormap begins.
`end`	The (corrected) hue in [0,1] at which the viridis colormap ends.
`discrete`	generate a discrete palette? (default: `FALSE` - generate continuous palette)
`option`	A character string indicating the colormap option to use. Four options are available: "magma" (or "A"), "inferno" (or "B"), "plasma" (or "C"), and "viridis" (or "D", the default option).
`direction`	Sets the order of colors in the scale. If 1, the default, colors are as output by viridis_pal. If -1, the order of colors is reversed.

Details

For `discrete == FALSE` (the default) all other arguments are as to scale_fill_gradientn or scale_color_gradientn. Otherwise the function will return a `discrete_scale` with the plot-computed number of colors.

See viridis for more information on the color scale.

Author(s)

Noam Ross <noam.ross@gmail.com> / @noamross (continuous version), Bob Rudis <bob@rudis.net> / @hrbrmstr (combined version)

Examples

```
library(ggplot2)

# ripped from the pages of ggplot2
p <- ggplot(mtcars, aes(wt, mpg))
p + geom_point(size=4, aes(colour = factor(cyl))) +
    scale_color_viridis(discrete=TRUE) +
    theme_bw()

# ripped from the pages of ggplot2
dsub <- subset(diamonds, x > 5 & x < 6 & y > 5 & y < 6)
dsub$diff <- with(dsub, sqrt(abs(x-y))* sign(x-y))
d <- ggplot(dsub, aes(x, y, colour=diff)) + geom_point()
d + scale_color_viridis() + theme_bw()


# from the main viridis example
dat <- data.frame(x = rnorm(10000), y = rnorm(10000))

ggplot(dat, aes(x = x, y = y)) +
  geom_hex() + coord_fixed() +
  scale_fill_viridis() + theme_bw()

library(ggplot2)
library(MASS)
library(gridExtra)

data("geyser", package="MASS")

ggplot(geyser, aes(x = duration, y = waiting)) +
  xlim(0.5, 6) + ylim(40, 110) +
  stat_density2d(aes(fill = ..level..), geom="polygon") +
  theme_bw() +
  theme(panel.grid=element_blank()) -> gg

grid.arrange(
  gg + scale_fill_viridis(option="A") + labs(x="Virdis A", y=NULL),
  gg + scale_fill_viridis(option="B") + labs(x="Virdis B", y=NULL),
  gg + scale_fill_viridis(option="C") + labs(x="Virdis C", y=NULL),
  gg + scale_fill_viridis(option="D") + labs(x="Virdis D", y=NULL),
  ncol=2, nrow=2
)
```

`viridis` *Matplotlib 'viridis' color map*

Description

This function creates a vector of `n` equally spaced colors along the Matplolib 'viridis' color map created by Stéfan van der Walt and Nathaniel Smith. This color map is designed in such a way that

it will analytically be perfectly perceptually-uniform, both in regular form and also when converted to black-and-white. It is also designed to be perceived by readers with the most common form of color blindness.

Usage

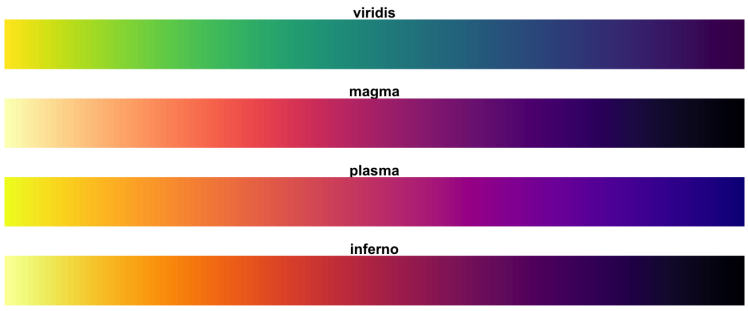
```
viridis(n, alpha = 1, begin = 0, end = 1, option = "D")

viridisMap(n = 256, alpha = 1, begin = 0, end = 1, option = "D")

magma(n, alpha = 1, begin = 0, end = 1)

inferno(n, alpha = 1, begin = 0, end = 1)

plasma(n, alpha = 1, begin = 0, end = 1)
```

Arguments

n	The number of colors (≥ 1) to be in the palette.
alpha	The alpha transparency, a number in [0,1], see argument alpha in hsv.
begin	The (corrected) hue in [0,1] at which the viridis colormap begins.
end	The (corrected) hue in [0,1] at which the viridis colormap ends.
option	A character string indicating the colormap option to use. Four options are available: "magma" (or "A"), "inferno" (or "B"), "plasma" (or "C"), and "viridis" (or "D", the default option).

Details

Here are the color scales:



magma(), plasma(), and inferno() are convenience functions for the other colormap options, which are useful the scale must be passed as a function name.

Semi-transparent colors ($0 < alpha < 1$) are supported only on some devices: see rgb.

Value

`viridis` returns a character vector, `cv`, of color hex codes. This can be used either to create a user-defined color palette for subsequent graphics by `palette(cv)`, a `col =` specification in graphics functions or in `par`.

`viridisMap` returns a `n` lines data frame containing the red (`R`), green (`G`), blue (`B`) and alpha (`alpha`) channels of `n` equally spaced colors along the 'viridis' color map. `n = 256` by default, which corresponds to the data from the original 'viridis' color map in Matplotlib.

Author(s)

Simon Garnier: <garnier@njit.edu>, @sjmgarnier

Examples

```
library(ggplot2)
library(hexbin)

dat <- data.frame(x = rnorm(10000), y = rnorm(10000))

ggplot(dat, aes(x = x, y = y)) +
  geom_hex() + coord_fixed() +
  scale_fill_gradientn(colours = viridis(256, option = "D"))

# using code from RColorBrewer to demo the palette
n = 200
image(
  1:n, 1, as.matrix(1:n),
  col = viridis(n, option = "D"),
  xlab = "viridis n", ylab = "", xaxt = "n", yaxt = "n", bty = "n"
)
```

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viridis.map *Original 'viridis' color map*

Description

A dataset containing the original RGB values of the default Matplotlib color map ('viridis'). Source: https://github.com/BIDS/colormap/blob/master/option_d.py.

Usage

```
viridis.map
```

Format

A data frame with 1024 rows and 4 variables:

- R: Red value
- G: Green value
- B: Blue value
- opt: The colormap "option" (A: magma; B: inferno; C: plasma; D: viridis)

`viridis_pal` *Viridis palette (discrete)*

Description

Viridis palette (discrete)

Usage

```
viridis_pal(alpha = 1, begin = 0, end = 1, option = "D")
```

Arguments

`alpha`	pass through parameter to `viridis`
`begin`	The (corrected) hue in [0,1] at which the viridis colormap begins.
`end`	The (corrected) hue in [0,1] at which the viridis colormap ends.
`option`	A character string indicating the colormap option to use. Four options are available: "magma" (or "A"), "inferno" (or "B"), "plasma" (or "C"), and "viridis" (or "D", the default option).

Details

Here is an example of a 20-element palette:

See viridis for more information on the color scale.

Author(s)

Bob Rudis <bob@rudis.net>

Examples

```
library(scales)
show_col(viridis_pal()(10))
```

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