Package ‘vistributions’

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Type Package

Title Visualize Probability Distributions

Version 0.1.2

Description Visualize and compute percentiles/probabilities of normal, t, f, chi square and binomial distributions.

Depends R(>= 3.2)

Imports ggplot2, magrittr, stats, utils

Suggests covr, knitr, rmarkdown, testthat, vdiffr, xplorerr

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URL https://github.com/rsquaredacademy/vistributions,
    https://vistributions.rsquaredacademy.com

BugReports https://github.com/rsquaredacademy/vistributions/issues

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* vdist_binom_plot  
  * Visualize binomial distribution

**Description**

Visualize how changes in number of trials and the probability of success affect the shape of the binomial distribution. Compute & visualize probability from a given quantile and quantiles out of given probability.

**Usage**

```r
vdist_binom_plot(n = 10, p = 0.3, print_plot = TRUE)

vdist_binom_prob(
  n = 10,
  p = 0.3,
  s = 4,
  type = c("lower", "upper", "exact", "interval"),
  print_plot = TRUE
)

vdist_binom_perc(
  n = 10,
  p = 0.5,
  tp = 0.05,
  type = c("lower", "upper"),
  print_plot = TRUE
)
```

**Arguments**

- `n` Number of trials.
- `p` Aggregate probability.
- `print_plot` logical; if TRUE, prints the plot else returns a plot object.
- `s` Number of success.
- `type` Lower/upper/exact/interval.
- `tp` Probability of success in a trial.

**See Also**

[Binomial]
Examples

```r
# visualize binomial distribution
vdist_binom_plot(10, 0.3)

# visualize probability from a given quantile
vdist_binom_prob(10, 0.3, 4, type = 'exact')
vdist_binom_prob(10, 0.3, 4, type = 'lower')
vdist_binom_prob(10, 0.3, 4, type = 'upper')
vdist_binom_prob(10, 0.3, c(4, 6), type = 'interval')

# visualize quantiles out of given probability
vdist_binom_perc(10, 0.5, 0.05)
vdist_binom_perc(10, 0.5, 0.05, "upper")
```

---

### vdist_chisquare_plot

**Visualize chi square distribution**

**Description**

Visualize how changes in degrees of freedom affect the shape of the chi square distribution. Compute & visualize quantiles out of given probability and probability from a given quantile.

**Usage**

```r
vdist_chisquare_plot(
  df = 3,
  normal = FALSE,
  xaxis_range = 25,
  print_plot = TRUE
)

vdist_chisquare_perc(
  probs = 0.95,
  df = 3,
  type = c("lower", "upper"),
  print_plot = TRUE
)

vdist_chisquare_prob(
  perc = 13,
  df = 11,
  type = c("lower", "upper"),
  print_plot = TRUE
)
```
Arguments

- **df**: Degrees of freedom.
- **normal**: If TRUE, normal curve with same mean and sd as the chi square distribution is drawn.
- **xaxis_range**: The upper range of the X axis.
- **print_plot**: logical; if TRUE, prints the plot else returns a plot object.
- **probs**: Probability value.
- **type**: Lower tail or upper tail.
- **perc**: Quantile value.

See Also

- Chisquare

Examples

```r
# visualize chi square distribution
vdist_chisquare_plot()
vdist_chisquare_plot(df = 5)
vdist_chisquare_plot(df = 5, normal = TRUE)

# visualize quantiles out of given probability
vdist_chisquare_perc(0.165, 8, 'lower')
vdist_chisquare_perc(0.22, 13, 'upper')

# visualize probability from a given quantile.
vdist_chisquare_prob(13.58, 11, 'lower')
vdist_chisquare_prob(15.72, 13, 'upper')
```

Description

Visualize how changes in degrees of freedom affect the shape of the F distribution. Compute & visualize quantiles out of given probability and probability from a given quantile.

Usage

```r
vdist_f_plot(num_df = 4, den_df = 30, normal = FALSE, print_plot = TRUE)

vdist_f_perc(
  probs = 0.95,
  num_df = 3,
  den_df = 30,
```

vdist_f_plot"
vdist_f_plot

  type = c("lower", "upper"),
  print_plot = TRUE
)

vdist_f_prob(
  perc = 2.35,
  num_df = 5,
  den_df = 32,
  type = c("lower", "upper"),
  print_plot = TRUE
)

Arguments

num_df Degrees of freedom associated with the numerator of f statistic.
den_df Degrees of freedom associated with the denominator of f statistic.
normal If TRUE, normal curve with same mean and sd as the F distribution is drawn.
print_plot logical; if TRUE, prints the plot else returns a plot object.
probs Probability value.
type Lower tail or upper tail.
perc Quantile value.

See Also

FDist

Examples

  # visualize F distribution
  vdist_f_plot()
  vdist_f_plot(6, 10, normal = TRUE)

  # visualize probability from a given quantile
  vdist_f_perc(0.95, 3, 30, 'lower')
  vdist_f_perc(0.125, 9, 35, 'upper')

  # visualize quantiles out of given probability
  vdist_f_prob(2.35, 5, 32)
  vdist_f_prob(1.5222, 9, 35, type = "upper")
vdist_launch_app  Launch shiny app

Description
Launches shiny app for visualizing distributions.

Usage
vdist_launch_app()

Examples
## Not run:
vdist_launch_app ()
## End(Not run)

vdist_normal_plot  Visualize normal distribution

Description
Visualize how changes in mean and standard deviation affect the shape of the normal distribution. Compute & visualize quantiles out of given probability and probability from a given quantile.

Usage
vdist_normal_plot(mean = 0, sd = 1, print_plot = TRUE)

vdist_normal_perc(
  probs = 0.95,
  mean = 0,
  sd = 1,
  type = c("lower", "upper", "both"),
  print_plot = TRUE
)

vdist_normal_prob(
  perc = 3,
  mean = 0,
  sd = 1,
  type = c("lower", "upper", "both"),
  print_plot = TRUE
)
vdist_t

Visualize t distribution

Description
Visualize how degrees of freedom affect the shape of t distribution, visualize quantiles out of given probability and probability from a given quantile.

Usage
vdist_t_plot(df = 3, print_plot = TRUE)

vdist_t_perc(
    probs = 0.95,
    df = 4,
    type = c("lower", "upper", "both"),
    print_plot = TRUE
)
vdist_t_prob(
    perc = 1.6,
    df = 7,
    type = c("lower", "upper", "interval", "both"),
    print_plot = TRUE
)

Arguments

- **df**: Degrees of freedom.
- **print_plot**: Logical; if TRUE, prints the plot else returns a plot object.
- **probs**: Probability value.
- **type**: Lower tail, upper tail, interval or both.
- **perc**: Quantile value.

See Also

- TDist

Examples

```r
# visualize t distribution
vdist_t_plot()
vdist_t_plot(6)
vdist_t_plot(df = 8)

# visualize quantiles out of given probability
vdist_t_perc(probs = 0.95, df = 4, type = 'lower')
vdist_t_perc(probs = 0.35, df = 4, type = 'upper')
vdist_t_perc(probs = 0.69, df = 7, type = 'both')

# visualize probability from a given quantile
vdist_t_prob(2.045, 7, 'lower')
vdist_t_prob(0.945, 7, 'upper')
vdist_t_prob(1.445, 7, 'interval')
vdist_t_prob(1.6, 7, 'both')
```

Description

Vistributions package

Visualize probability distributions.
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