pander: A Pandoc writer in R
Transforming R objects to Pandoc's markdown

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What is pander?
A smarty R expression evaluator

```
> evals('chisq.test(mtcars$am, mtcars$gear)')[[1]]
$src

    [1] "chisq.test(mtcars$am, mtcars$gear)"
$result

        Pearson's Chi-squared test

    data:  mtcars$am and mtcars$gear

    X-squared = 20.9447, df = 2, p-value = 2.831e-05
$output

    [2] "  Pearson's Chi-squared test"

    [4] "data:  mtcars$am and mtcars$gear"

    [5] "X-squared = 20.9447, df = 2, p-value = 2.831e-05"

    [6] ""
$type

    [1] "htest"
$msg

$msg$warnings

    [1] "Chi-squared approximation may be incorrect"

$msg$errors
```

What is pander?
A collection of helper functions to print markdown syntax

```
> ?pandoc.(footnote|header|horizontal.rule|image|link|p)(.return)?
> ?pandoc.(emphasis|strikeout|strong|verbatim)(.return)?


> pandoc.strong('foobar')
**foobar**


> pandoc.strong.return('foobar')
[1] "**foobar**"


> pandoc.header('foobar', level = 2)

## foobar


> pandoc.header('foobar', style = 'setext')

foobar
======
```

What is pander?
Collection of helper functions to map R objects to markdown

```
> ?pandoc.(list|table)(.return)?

> pandoc.list(list('foo', list('bar')))

 * foo
   * bar

> pandoc.table(head(iris, 2), split.table = Inf)
```

```
    -----------------------------------------------------------------
    Sepal.Length   Sepal.Width   Petal.Length   Petal.Width   Species
    -------------- ------------- -------------- ------------- ---------
        5.1            3.5           1.4            0.2        setosa

        4.9             3            1.4            0.2        setosa
    -----------------------------------------------------------------
```

What is pander?

Collection of helper functions to map R objects to various markdown languages

```
> pandoc.table(head(iris, 2), split.table = Inf, style = 'rmarkdown')
```

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3	1.4	0.2	setosa

```
> pandoc.table(head(iris, 2), split.table = Inf, style = 'simple')
```

```
    Sepal.Length   Sepal.Width   Petal.Length   Petal.Width   Species
   -------------- ------------- -------------- ------------- ---------
        5.1           3.5           1.4           0.2         setosa
        4.9            3            1.4           0.2         setosa
```

What is pander?
Collection of helper functions to map R objects to various markdown languages

```
> iris$Species <- 'foos and bars'; names(iris) <- gsub('.', ' ', names(iris))
> pandoc.table(head(iris, 4), split.table = Inf, style = 'grid',
+ split.cells = 5, justify = 'left')
+----------+---------+----------+---------+------------+
|   Sepal  |  Sepal  |   Petal  |  Petal  |   Species  |
|  Length  |  Width  |  Length  |  Width  |            |
+==========+=========+==========+=========+============+
|     5.1  |    3.5  |     1.4  |    0.2  |    setosa  |
+----------+---------+----------+---------+------------+
|     4.9  |      3  |     1.4  |    0.2  |    setosa  |
+----------+---------+----------+---------+------------+
|     4.7  |    3.2  |     1.3  |    0.2  |    setosa  |
+----------+---------+----------+---------+------------+
|     4.6  |    3.1  |     1.5  |    0.2  |      foos  |
|          |         |          |         |       and  |
|          |         |          |         |      bars  |
+----------+---------+----------+---------+------------+
```

What is pander?
S3 method to map R objects to markdown

```
> ?pander(.return)?
> methods(pander)
 [1] pander.anova*      pander.aov*        pander.cast_df*    pander.character*
 [5] pander.data.frame* pander.default*    pander.density*    pander.evals*
 [9] pander.factor*     pander.glm*        pander.htest*      pander.image*
[13] pander.list*       pander.lm*         pander.logical*    pander.matrix*
[17] pander.NULL*       pander.numeric*    pander.option      pander.POSIXct*
[21] pander.POSIXt*     pander.prcomp*     pander.rapport*    pander.return
[25] pander.table*
   Non-visible functions are asterisked
> pander(head(iris, 1), split.table = Inf)

    -------------------------------------------------------------------
    Sepal.Length    Sepal.Width    Petal.Length    Petal.Width    Species
    --------------  -------------  --------------  -------------  ---------
        5.1             3.5             1.4             0.2         setosa
    -------------------------------------------------------------------
```

What is pander?
S3 method to map R objects to markdown

```
> pander(letters[1:7])

_a_, _b_, _c_, _d_, _e_, _f_ and _g_
> pander(ks.test(runif(50), runif(50))

 ---------------------------------------------------

  Test statistic   P value   Alternative hypothesis

 ---------------- --------- ------------------------

      0.18         _0.3959_          two-sided

 ---------------------------------------------------

 Table: Two-sample Kolmogorov-Smirnov test: `runif(50)` and `runif(50)`
> pander(chisq.test(table(mtcars$am, mtcars$gear)))

 ----------------------------------------

  Test statistic   df       P value

 ---------------- ---- ----------------

      20.94         2    _2.831e-05_ * * *

 ----------------------------------------

 Table: Pearson's Chi-squared test: `table(mtcars$am, mtcars$gear)`
```

What is pander?
S3 method to map R objects to markdown

```
> pander(lm(mtcars$wt ~ mtcars$hp), summary = TRUE)
```

	Estimate	Std. Error	t value	Pr(>|t|)
mtcars$hp	0.009401	0.00196	4.796	4.146e-05
(Intercept)	1.838	0.3165	5.808	2.389e-06

Observations	Residual Std. Error	R^2	Adjusted R^2
32	0.7483	0.4339	0.4151

Table: Fitting linear model: mtcars$wt ~ mtcars$hp

What is pander?

S3 method to map R objects to pretty formatted markdown

```
> panderOptions('table.split.table', Inf)
> panderOptions('table.style', 'grid')
> emphasize.cells(which(iris > 1.3, arr.ind = TRUE))
> pander(iris)
```

```
+-----------------+----------------+-----------------+----------------+-----------+
|  Sepal.Length   |  Sepal.Width   |  Petal.Length   |  Petal.Width   |  Species  |
+=================+================+=================+================+===========+
|     *5.1*       |     *3.5*      |      *1.4*      |      0.2       |  setosa   |
+-----------------+----------------+-----------------+----------------+-----------+
|     *4.9*       |      *3*       |      *1.4*      |      0.2       |  setosa   |
+-----------------+----------------+-----------------+----------------+-----------+
|     *4.7*       |     *3.2*      |       1.3       |      0.2       |  setosa   |
+-----------------+----------------+-----------------+----------------+-----------+
|     *4.6*       |     *3.1*      |      *1.5*      |      0.2       |  setosa   |
+-----------------+----------------+-----------------+----------------+-----------+
|      *5*        |     *3.6*      |      *1.4*      |      0.2       |  setosa   |
+-----------------+----------------+-----------------+----------------+-----------+
```

What is pander?
Tool for literate programming like Sweave, knitr or brew

```
> ?Pandoc.brew

> Pandoc.brew(text = '
+ Pi equals to <%=pi%>, and the best damn cars are:
+ <%=head(mtcars, 2)%>
+ ')

 Pi equals to _3.142_, and the best damn cars are:


------------------------------------------------------------
              mpg   cyl   disp   hp   drat    wt
-----------------  -----  -----  ------  ----  ------  -----
   **Mazda RX4**    21     6     160    110   3.9    2.62

 **Mazda RX4 Wag**  21     6     160    110   3.9    2.875

------------------------------------------------------------
Table: Table continues below
```

What is pander?
Tool for literate programming like Sweave, knitr or brew

Features of Pandoc.brew:

- brew loops and conditional parts of a report just like with brew,
- capturing plots and images with automatically applied theme,
- render all R objects automatically in Pandoc's markdown,
- recording all warning/error messages **plus** the raw R objects along with anything printed to stdout and the printed results,
- custom caching mechanism to disk or RAM with auto-dependecy,
- convert to HTML/pdf/odt/docx at one go,
- no chunk options (only workaround),
- building reports also in interactive session with an R5 reference class.

  http://rapporter.github.io/pander/#brew-to-pandoc

What is pander?
Tool for literate programming like Sweave, knitr or brew – with global options

```
?panderOptions
?evalsOptions
```

- number formatting style (decimal mark, digits, trailing spaces etc.),
- date format,
- table formats (split, alignment, caption etc.),
- vector options (separator, copula, wrapper character),
- global graph settings for base, lattice and ggplot2 calls:
    - color palette, font settings, grid,
    - legend poistion, axis labels angle etc.
- plot dimensions, resolution,
- cache options, hooks, filter output etc.

http://rapporter.github.io/pander/#pander-options

What is pander?
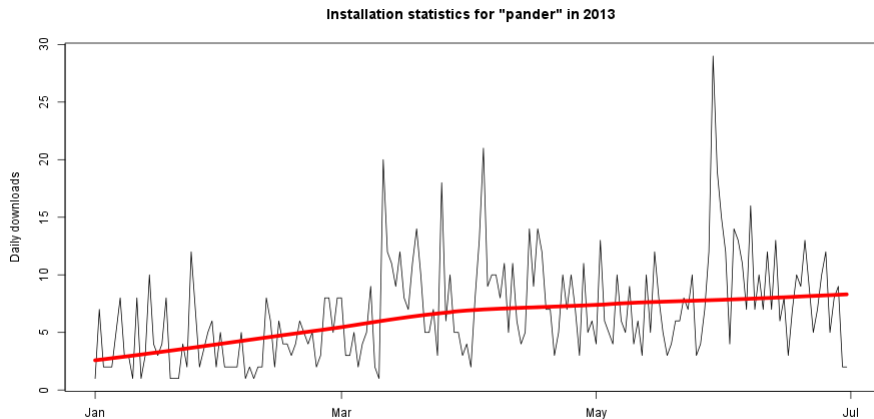
Tool for literate programming like Sweave, knitr or brew – a quick comparison


```
> require(wordcloud)

> pkgs <- ctv:::.get_pkgs_from_ctv_or_repos('ReproducibleResearch')[[1]]

> wordcloud(pkgs, rep(1, times = length(pkgs)), colors = rainbow(length(pkgs)),

+     random.color = TRUE)
```

What is pander?

Installation statistics for "pander" in 2013

http://rapporter.github.io/pander