

R Examples Generate Tibble Dataframes

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1 Generate Dataframe

Go to the [RMD](#), [R](#), [PDF](#), or [HTML](#) version of this file. Go back to [fan's REconTools Package](#), [R Code Examples Repository \(bookdown site\)](#), or [Intro Stats with R Repository \(bookdown site\)](#).

1.1 Generate Tibble given Matrixes and Arrays

Given Arrays and Matrixes, Generate Tibble and Name Variables/Columns

- naming tibble columns
- tibble variable names
- dplyr rename tibble
- dplyr rename tibble all variables
- dplyr rename all columns by index
- dplyr tibble add index column
- see also: [SO-51205520](#)

```
# Base Inputs
ar_col <- c(-1,+1)
mt_rnorm_a <- matrix(rnorm(4,mean=0,sd=1), nrow=2, ncol=2)
mt_rnorm_b <- matrix(rnorm(4,mean=0,sd=1), nrow=2, ncol=4)

# Combine Matrix
mt_combine <- cbind(ar_col, mt_rnorm_a, mt_rnorm_b)
colnames(mt_combine) <- c('ar_col',
                          paste0('matcolvar_grpa_', seq(1,dim(mt_rnorm_a)[2])),
                          paste0('matcolvar_grpb_', seq(1,dim(mt_rnorm_b)[2])))

# Variable Names
ar_st_varnames <- c('var_one',
                   paste0('tibcolvar_ga_', c(1,2)),
                   paste0('tibcolvar_gb_', c(1,2,3,4)))

# Combine to tibble, add name col1, col2, etc.
```

```
tb_combine <- as_tibble(mt_combine) %>% rename_all(~c(ar_st_varnames))

# Add an index column to the dataframe, ID column
tb_combine <- tb_combine %>% rowid_to_column(var = "ID")

# Change all gb variable names
tb_combine <- tb_combine %>%
  rename_at(vars(starts_with("tibcolvar_gb_")),
            funs(str_replace(., "_gb_", "_gbrenamed_")))

# Tibble back to matrix
mt_tb_combine_back <- data.matrix(tb_combine)

# Display
kable(mt_combine) %>% kable_styling_fc_wide()
```

ar_col	matcolvar_grpa_1	matcolvar_grpa_2	matcolvar_grpb_1	matcolvar_grpb_2	matcolvar_grpb_3	matcolvar_grpb_4
-1	-0.0833691	-0.0285468	1.368602	1.516471	1.368602	1.516471
1	0.2533185	-0.0428705	-0.225771	-1.548753	-0.225771	-1.548753

```
kable(tb_combine) %>% kable_styling_fc_wide()
```

ID	var_one	tibcolvar_ga_1	tibcolvar_ga_2	tibcolvar_gbrenamed_1	tibcolvar_gbrenamed_2	tibcolvar_gbrenamed_3	tibcolvar_gbrenamed_4
1	-1	-0.0833691	-0.0285468	1.368602	1.516471	1.368602	1.516471
2	1	0.2533185	-0.0428705	-0.225771	-1.548753	-0.225771	-1.548753

```
kable(mt_tb_combine_back) %>% kable_styling_fc_wide()
```

ID	var_one	tibcolvar_ga_1	tibcolvar_ga_2	tibcolvar_gbrenamed_1	tibcolvar_gbrenamed_2	tibcolvar_gbrenamed_3	tibcolvar_gbrenamed_4
1	-1	-0.0833691	-0.0285468	1.368602	1.516471	1.368602	1.516471
2	1	0.2533185	-0.0428705	-0.225771	-1.548753	-0.225771	-1.548753

1.2 Rename Tibble with Numeric Column Names

After reshaping, often could end up with variable names that are all numeric, integers for example, how to rename these variables to add a common prefix for example.

```
# Base Inputs
ar_col <- c(-1,+1)
mt_rnorm_c <- matrix(rnorm(4,mean=0,sd=1), nrow=5, ncol=10)
mt_combine <- cbind(ar_col, mt_rnorm_c)

# Variable Names
ar_it_cols_ctr <- seq(1, dim(mt_rnorm_c)[2])
ar_st_varnames <- c('var_one', ar_it_cols_ctr)

# Combine to tibble, add name col1, col2, etc.
tb_combine <- as_tibble(mt_combine) %>% rename_all(~c(ar_st_varnames))

# Add an index column to the dataframe, ID column
tb_combine_ori <- tb_combine %>% rowid_to_column(var = "ID")

# Change all gb variable names
tb_combine <- tb_combine_ori %>%
  rename_at(
    vars(num_range('1', ar_it_cols_ctr)),
```

```

      funs(paste0("rho", . , 'var'))
    )

```

```

# Display
kable(tb_combine_ori) %>% kable_styling_fc_wide()

```

ID	var_one	1	2	3	4	5	6	7	8	9	10
1	-1	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542
2	1	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416
3	-1	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395
4	1	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137
5	-1	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542

```

kable(tb_combine) %>% kable_styling_fc_wide()

```

ID	var_one	rho1var	rho2var	rho3var	rho4var	rho5var	rho6var	rho7var	rho8var	rho9var	rho10var
1	-1	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542
2	1	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416
3	-1	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395
4	1	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137
5	-1	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542	0.2159416	0.3796395	0.5846137	0.1238542

1.3 Tibble Row and Column and Summarize

Show what is in the table: 1, column and row names; 2, contents inside table.

```

tb_iris <- as_tibble(iris)
print(rownames(tb_iris))

```

```

##      [1] "1"   "2"   "3"   "4"   "5"   "6"   "7"   "8"   "9"   "10"  "11"  "12"  "13"  "14"  "15"  "16"
##      [25] "25"  "26"  "27"  "28"  "29"  "30"  "31"  "32"  "33"  "34"  "35"  "36"  "37"  "38"  "39"  "40"
##      [49] "49"  "50"  "51"  "52"  "53"  "54"  "55"  "56"  "57"  "58"  "59"  "60"  "61"  "62"  "63"  "64"
##      [73] "73"  "74"  "75"  "76"  "77"  "78"  "79"  "80"  "81"  "82"  "83"  "84"  "85"  "86"  "87"  "88"
##      [97] "97"  "98"  "99"  "100" "101" "102" "103" "104" "105" "106" "107" "108" "109" "110" "111" "112"
##     [121] "121" "122" "123" "124" "125" "126" "127" "128" "129" "130" "131" "132" "133" "134" "135" "136"
##     [145] "145" "146" "147" "148" "149" "150"

```

```

colnames(tb_iris)

```

```

##      [1] "Sepal.Length" "Sepal.Width"  "Petal.Length" "Petal.Width"  "Species"

```

```

colnames(tb_iris)

```

```

##      [1] "Sepal.Length" "Sepal.Width"  "Petal.Length" "Petal.Width"  "Species"

```

```

summary(tb_iris)

```

```

##      Sepal.Length      Sepal.Width      Petal.Length      Petal.Width      Species
##      Min.       :4.300      Min.       :2.000      Min.       :1.000      Min.       :0.100      setosa      :50
##      1st Qu.:5.100      1st Qu.:2.800      1st Qu.:1.600      1st Qu.:0.300      versicolor:50
##      Median :5.800      Median :3.000      Median :4.350      Median :1.300      virginica  :50
##      Mean   :5.843      Mean   :3.057      Mean   :3.758      Mean   :1.199
##      3rd Qu.:6.400      3rd Qu.:3.300      3rd Qu.:5.100      3rd Qu.:1.800
##      Max.   :7.900      Max.   :4.400      Max.   :6.900      Max.   :2.500

```

1.4 Tibble Sorting

- dplyr arrange desc reverse
- dplyr sort

Sort in Ascending Order

```
tb_iris %>% select(Species, Sepal.Length, everything()) %>%
  arrange(Species, Sepal.Length) %>% head(10) %>%
  kable() %>% kable_styling_fc()
```

Species	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width
setosa	4.3	3.0	1.1	0.1
setosa	4.4	2.9	1.4	0.2
setosa	4.4	3.0	1.3	0.2
setosa	4.4	3.2	1.3	0.2
setosa	4.5	2.3	1.3	0.3
setosa	4.6	3.1	1.5	0.2
setosa	4.6	3.4	1.4	0.3
setosa	4.6	3.6	1.0	0.2
setosa	4.6	3.2	1.4	0.2
setosa	4.7	3.2	1.3	0.2

Sort in Descending Order

```
tb_iris %>% select(Species, Sepal.Length, everything()) %>%
  arrange(desc(Species), desc(Sepal.Length)) %>% head(10) %>%
  kable() %>% kable_styling_fc()
```

Species	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width
virginica	7.9	3.8	6.4	2.0
virginica	7.7	3.8	6.7	2.2
virginica	7.7	2.6	6.9	2.3
virginica	7.7	2.8	6.7	2.0
virginica	7.7	3.0	6.1	2.3
virginica	7.6	3.0	6.6	2.1
virginica	7.4	2.8	6.1	1.9
virginica	7.3	2.9	6.3	1.8
virginica	7.2	3.6	6.1	2.5
virginica	7.2	3.2	6.0	1.8

1.5 REconTools Summarize over Tibble

Use R4Econ's summary tool.

```
df_summ_stats <- ff_summ_percentiles(tb_iris)
kable(t(df_summ_stats)) %>% kable_styling_fc_wide()
```

stats	n	NAobs	ZEROobs	mean	sd	cv	min	p01	p05	p10	p25	p50	p75	p90	p95	p99	max
Petal.Length	150	0	0	3.758000	1.7652982	0.4697441	1.0	1.149	1.300	1.4	1.6	4.35	5.1	5.80	6.100	6.700	6.9
Petal.Width	150	0	0	1.199333	0.7622377	0.6355511	0.1	0.100	0.200	0.2	0.3	1.30	1.8	2.20	2.300	2.500	2.5
Sepal.Length	150	0	0	5.843333	0.8280661	0.1417113	4.3	4.400	4.600	4.8	5.1	5.80	6.4	6.90	7.255	7.700	7.9
Sepal.Width	150	0	0	3.057333	0.4358663	0.1425642	2.0	2.200	2.345	2.5	2.8	3.00	3.3	3.61	3.800	4.151	4.4