

# Package ‘KSA’

October 12, 2022

**Type** Package

**Title** Retained Component Criterion for Principal Component Analysis

**Version** 0.1.0

**Date** 2022-09-20

**Author** Fayed Alshammri

**Maintainer** Dr. Fayed Alshammri <fayed333@hotmail.com>

**Description** The Retained Component Criterion for Principal Component Analysis (RCC\_PCA) is a tool to determine the optimal number of components to retain in PCA.

**License** GPL-2

**Depends** stats, graphics

**Encoding** UTF-8

**RoxygenNote** 7.2.1

**NeedsCompilation** no

**Repository** CRAN

**Date/Publication** 2022-09-21 22:20:06 UTC

## R topics documented:

RCC\_PCA . . . . . 1

**Index** . . . . . 3

---

RCC\_PCA *Retained Component Criterion for Principal Component Analysis*

---

### Description

The Retained Component Criterion for Principal Component Analysis (RCC\_PCA) is build under the KSA package, which is named after my home country the Kingdom of Saudi Arabia. The RCC\_PCA criterion is a new tool to determine the optimal number of components (i.e. PCs) to retain for Principal Component Analysis (PCA). This criterion balances between the following two desires, reducing the dimension of the data and increasing the accuracy of the final results of PCA; See Alshammri (2022).

**Usage**`RCC_PCA(x)`**Arguments**

`x` a N-by-m data matrix, where the rows are "N" observations, and the columns are "m" variables

**Value**

The values of RCC criterion

**Author(s)**

Fayed Alshammri

**References**

Alshammri, F. (2022). Retained component criterion for optimizing principal component analysis. Manuscript submitted for publication.

**Examples**

```
##The data matrix x is the scalled first four variables of "iris data" with m=4 and N=150.
x=scale(iris[,1:4])

##calculate and plot the RCC_PCA values of x after applying PCA.
myresults=RCC_PCA(x)

##lists the values of RCC criterion
myresults
```

# Index

RCC\_PCA, 1