Tablas de frecuencia

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_____ TABLAS DE FRECUENCIAS _____

Se implementa la matriz iris

Exploración de la Matriz Iris

1.- Importación de la matriz

```r
data(iris)
```

2.- Exploración de la matriz

```r
dim(iris)
```

```
## [1] 150   5
```

3.- Nombre de las columnas

```r
colnames(iris)
```

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

4.- Tipo de variables

```r
str(iris)
```

```
## 'data.frame':    150 obs. of  5 variables:
##  $ Sepal.Length: num  5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
##  $ Sepal.Width : num  3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
##  $ Petal.Length: num  1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
##  $ Petal.Width : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
##  $ Species     : Factor w/ 3 levels "setosa","versicolor",..: 1 1 1 1 1 1 1 1 1 1 ...
```

5.- En busca de datos perdidos

```r
anyNA(iris)
```

```
## [1] FALSE
```

Generación de tablas

1.- Convertimos la matriz de datos a un data frame, se agrupan los valores para la variable Petal.Length y se calcula la frecuencia absoluta.

```r
tabla_PL<-as.data.frame(table(PL = iris$Petal.Length))
```

2.- Frecuencia absoluta de la variable Petal.Length (PL) Se muestra la tabla de contingencia para la variable PL con su respectiva frecuencia absoluta.

```
tabla_PL
```

```
##      PL Freq
## 1     1    1
## 2   1.1    1
## 3   1.2    2
## 4   1.3    7
## 5   1.4   13
## 6   1.5   13
## 7   1.6    7
## 8   1.7    4
## 9   1.9    2
## 10    3    1
## 11  3.3    2
## 12  3.5    2
## 13  3.6    1
## 14  3.7    1
## 15  3.8    1
## 16  3.9    3
## 17    4    5
## 18  4.1    3
## 19  4.2    4
## 20  4.3    2
## 21  4.4    4
## 22  4.5    8
## 23  4.6    3
## 24  4.7    5
## 25  4.8    4
## 26  4.9    5
## 27    5    4
## 28  5.1    8
## 29  5.2    2
## 30  5.3    2
## 31  5.4    2
## 32  5.5    3
## 33  5.6    6
## 34  5.7    3
## 35  5.8    3
## 36  5.9    2
## 37    6    2
## 38  6.1    3
## 39  6.3    1
## 40  6.4    1
## 41  6.6    1
## 42  6.7    2
## 43  6.9    1
```

3.- Se contruye la tabla de frecuencias completas redondeando las frecuencias absolutas a 3 decimales.

```
tabla_no_agrupada<-transform(tabla_PL,
        freqAc=cumsum(Freq),
        Rel= round(prop.table(Freq),3),
        RelAc=round(cumsum(prop.table(Freq)),3))
```

```
tabla_no_agrupada
```

```
##      PL Freq freqAc   Rel RelAc
## 1    1    1      1 0.007 0.007
## 2  1.1    1      2 0.007 0.013
## 3  1.2    2      4 0.013 0.027
## 4  1.3    7     11 0.047 0.073
## 5  1.4   13     24 0.087 0.160
## 6  1.5   13     37 0.087 0.247
## 7  1.6    7     44 0.047 0.293
## 8  1.7    4     48 0.027 0.320
## 9  1.9    2     50 0.013 0.333
## 10   3    1     51 0.007 0.340
## 11 3.3    2     53 0.013 0.353
## 12 3.5    2     55 0.013 0.367
## 13 3.6    1     56 0.007 0.373
## 14 3.7    1     57 0.007 0.380
## 15 3.8    1     58 0.007 0.387
## 16 3.9    3     61 0.020 0.407
## 17   4    5     66 0.033 0.440
## 18 4.1    3     69 0.020 0.460
## 19 4.2    4     73 0.027 0.487
## 20 4.3    2     75 0.013 0.500
## 21 4.4    4     79 0.027 0.527
## 22 4.5    8     87 0.053 0.580
## 23 4.6    3     90 0.020 0.600
## 24 4.7    5     95 0.033 0.633
## 25 4.8    4     99 0.027 0.660
## 26 4.9    5    104 0.033 0.693
## 27   5    4    108 0.027 0.720
## 28 5.1    8    116 0.053 0.773
## 29 5.2    2    118 0.013 0.787
## 30 5.3    2    120 0.013 0.800
## 31 5.4    2    122 0.013 0.813
## 32 5.5    3    125 0.020 0.833
## 33 5.6    6    131 0.040 0.873
## 34 5.7    3    134 0.020 0.893
## 35 5.8    3    137 0.020 0.913
## 36 5.9    2    139 0.013 0.927
## 37   6    2    141 0.013 0.940
## 38 6.1    3    144 0.020 0.960
## 39 6.3    1    145 0.007 0.967
## 40 6.4    1    146 0.007 0.973
## 41 6.6    1    147 0.007 0.980
## 42 6.7    2    149 0.013 0.993
## 43 6.9    1    150 0.007 1.000
```

4.- Agruparemos las variables en 8 clases y se calcula la frecuencia absoluta.

```
tabla_clases<-as.data.frame(table (Petal.length = factor
                              (cut(iris$Petal.Length,
                                  breaks = 8))))
```

5.- Visualizamos la tabla de clases

```
tabla_clases
```

```
##    Petal.length Freq
## 1 (0.994,1.74]   48
## 2  (1.74,2.48]    2
## 3  (2.48,3.21]    1
## 4  (3.21,3.95]   10
## 5  (3.95,4.69]   29
## 6  (4.69,5.43]   32
## 7  (5.43,6.16]   22
## 8  (6.16,6.91]    6
```

6.- Contrucción de la tabla de frecuencias completa redondeando las frecuencias relativas a 3 decimales.

```
tabla_agrupada<-transform(tabla_clases,
                freqAc=cumsum(Freq),
                Rel= round(prop.table(Freq),3),
                RelAc=round(cumsum(prop.table(Freq)),3))
```

```
tabla_agrupada
```

```
##    Petal.length Freq freqAc   Rel RelAc
## 1 (0.994,1.74]   48     48 0.320 0.320
## 2  (1.74,2.48]    2     50 0.013 0.333
## 3  (2.48,3.21]    1     51 0.007 0.340
## 4  (3.21,3.95]   10     61 0.067 0.407
## 5  (3.95,4.69]   29     90 0.193 0.600
## 6  (4.69,5.43]   32    122 0.213 0.813
## 7  (5.43,6.16]   22    144 0.147 0.960
## 8  (6.16,6.91]    6    150 0.040 1.000
```

7.- Organización visual de la tabla (variable Petal.length)

7.1.- Instalamos la librería knitr

```
install.packages("knitr")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.3'
## (as 'lib' is unspecified)
```

```
install.packages("xfun")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.3'
## (as 'lib' is unspecified)
```

7.2.- Se abre la librería

```
library(knitr)
```

7.3.- Se visualiza la tabla

```
kable(tabla_no_agrupada)
```

PL	Freq	freqAc	Rel	RelAc
1	1	1	0.007	0.007
1.1	1	2	0.007	0.013
1.2	2	4	0.013	0.027

PL	Freq	freqAc	Rel	RelAc
1.3	7	11	0.047	0.073
1.4	13	24	0.087	0.160
1.5	13	37	0.087	0.247
1.6	7	44	0.047	0.293
1.7	4	48	0.027	0.320
1.9	2	50	0.013	0.333
3	1	51	0.007	0.340
3.3	2	53	0.013	0.353
3.5	2	55	0.013	0.367
3.6	1	56	0.007	0.373
3.7	1	57	0.007	0.380
3.8	1	58	0.007	0.387
3.9	3	61	0.020	0.407
4	5	66	0.033	0.440
4.1	3	69	0.020	0.460
4.2	4	73	0.027	0.487
4.3	2	75	0.013	0.500
4.4	4	79	0.027	0.527
4.5	8	87	0.053	0.580
4.6	3	90	0.020	0.600
4.7	5	95	0.033	0.633
4.8	4	99	0.027	0.660
4.9	5	104	0.033	0.693
5	4	108	0.027	0.720
5.1	8	116	0.053	0.773
5.2	2	118	0.013	0.787
5.3	2	120	0.013	0.800
5.4	2	122	0.013	0.813
5.5	3	125	0.020	0.833
5.6	6	131	0.040	0.873
5.7	3	134	0.020	0.893
5.8	3	137	0.020	0.913
5.9	2	139	0.013	0.927
6	2	141	0.013	0.940
6.1	3	144	0.020	0.960
6.3	1	145	0.007	0.967
6.4	1	146	0.007	0.973
6.6	1	147	0.007	0.980
6.7	2	149	0.013	0.993
6.9	1	150	0.007	1.000

```r
kable(tabla_agrupada)
```

Petal.length	Freq	freqAc	Rel	RelAc
(0.994,1.74]	48	48	0.320	0.320
(1.74,2.48]	2	50	0.013	0.333
(2.48,3.21]	1	51	0.007	0.340
(3.21,3.95]	10	61	0.067	0.407
(3.95,4.69]	29	90	0.193	0.600
(4.69,5.43]	32	122	0.213	0.813
(5.43,6.16]	22	144	0.147	0.960

Petal.length	Freq	freqAc	Rel	RelAc
(6.16,6.91]	6	150	0.040	1.000