IMAGE-BASED AUTOMATED TRACKING OF ANIMAL MOVEMENT AND ALERT

P.SIVALAKSHMI [1]
Research Scholar,
Khadir Mohideen College,
Adirampattinam.

Dr .A.SHAIK ABDUL KHADIR,M.Sc.,M.Phil,Ph.D [2]
Head & Associate Professor Of Computer Science,
Khadir Mohideen College,
Adirampattinam.

Abstract:

Improvements in measuring technology are allowing us to follow animal movements with increasing accuracy, precision and frequency. The enhanced complexity of the data collections, however, supply additional software and programming skills to process, store and disseminate the datasets. Past focus on data availability has also increase the need for sustainable data management solutions to ensure data integrity and supply longer term access. In the next-to-last ten years, a number of online quickness have been developed for the archiving, physical process and sharing of telemetry data. These artefact offer secure storage, multi-user support and investigation tools and are a step along the way to rising data access, long-term data condition and science connectedness. While these software platforms promote data sharing, access to the figure of the data and to the computer software behind these systems remains restricted. In this paper, we present a comprehensive, highly accessible and fully transparent software facility for animal movement data.The OzTrack system was implemented using the open-source object-relational database system. We used R TOOL analyze and classiy the animal movement.

KEYWORD: Oz track,R TOOL,Animal movements,Accuracy.

1.INTRODUCTION

An **animal track** is an identification left behind in soil, snow, or mud, or on some other ground surface, by an animal walk-to across it. Animal tracks are used by architect in tracking their animate being and by artificial to identify animals living in a given area.

Books are unremarkably used to identify animal tracks, which may look contrary based on the weight of the special animal and the type of strata in which they are made.

Evidence can be ossified over cardinal of years.It is for this rational motive we are able to see inflexible archosaurian reptile tracks in some types of rock placement. These types of oldster are called trace fossils since they are a trace of an physical left buns rather than the animal itself. In earth science, tracks often preserve as sandstone infill, forming a natural mold of the track.

MODULES

DATA PREPROCESSING:

The select of the data, to a large extent, affects the issue of statement. This means that data pre-processing plan of action an of the essence role in the model .The complexity of the dataset was faded by this process .There are some nonexistent and false values in the dataset due to errors or liberation. Most of the incorrect observational results were caused by these nonsensical values.

Knn:

The test data match of 35 remark. Out of which 5 cases have been inaccurately predicted (TN->True Negatives) as Benign (B) in nature which constitutes 14.3%. Also, 16 out of 35 state were accurately predicted (TP-> True Positives) as Malignant (M) in nature which constitutes 45.7%.

Normalizing numeric data

This feature is of paramount grandness since the scale used for the values for each covariant might be different. The best practice is to normalize the data and transform all the values to a individual scale.

```
normalize <- function(x) {
return ((x - min(x)) / (max(x) - min(x))) }
```

HISTOGRAM :

A histogram represents the frequencies of values of a multivariate bucketed into ranges. Histogram is similar to bar chat but the difference is it groups the values into incessant ranges. Each bar in histogram represents the summit of the number of values present in that range.

R creates histogram using **hist()** function. This usefulness takes a transmitter as an input and uses some more parameters to plot histograms.

Syntax

The basic syntax for creating a histogram using R is −

```
hist(v,main,xlab,xlim,ylim,breaks,col,border)
```

Example

A simple histogram is created using input vector, label, col and border parameters.

The script given below will create and save the histogram in the current R working directory.

```
# Create data for the graph.
v <-  c(9,13,21,8,36,22,12,41,31,33,19)
# Give the chart file a name.
png(file = "histogram.png")
# Create the histogram.
hist(v,xlab = "Weight",col = "yellow",border = "blue")
# Save the file.
dev.off()
```

When we execute the above code, it produces the following result −


Histogram of v
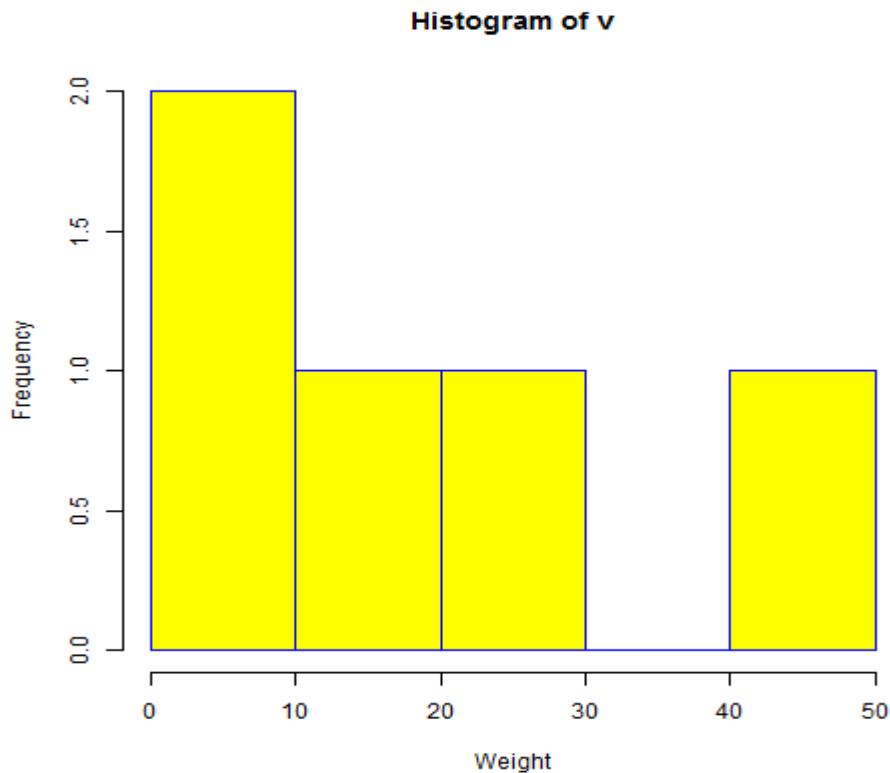
Range of X and Y values

To specify the range of values allowed in X axis and Y axis, we can use the xlim and ylim parameters.

The width of each of the bar can be decided by using breaks.

```
# Create data for the graph.
v <- c(9,13,21,8,36,22,12,41,31,33,19)
# Give the chart file a name.
png(file = "histogram_lim_breaks.png")
# Create the histogram.
hist(v,xlab = "Weight",col = "green",border = "red", xlim = c(0,40), ylim = c(0,5),
   breaks = 5)
# Save the file.
dev.off()
```

When we execute the above code, it produces the following result −

Histogram of v
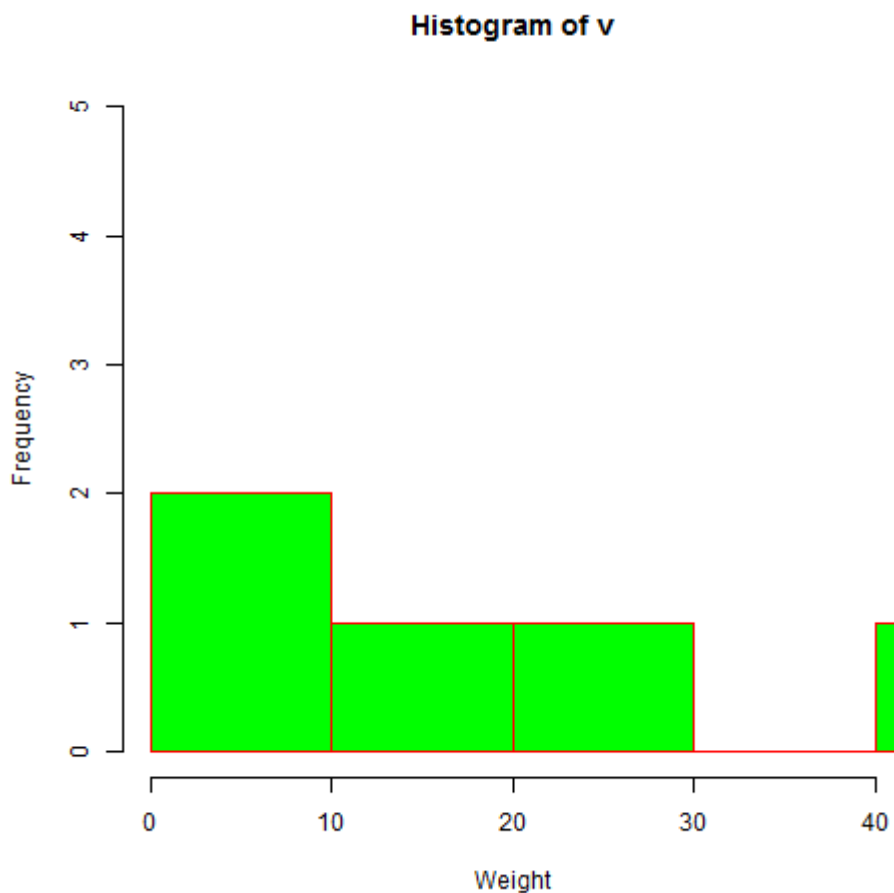
ARCHITECTURE DIAGRAM:
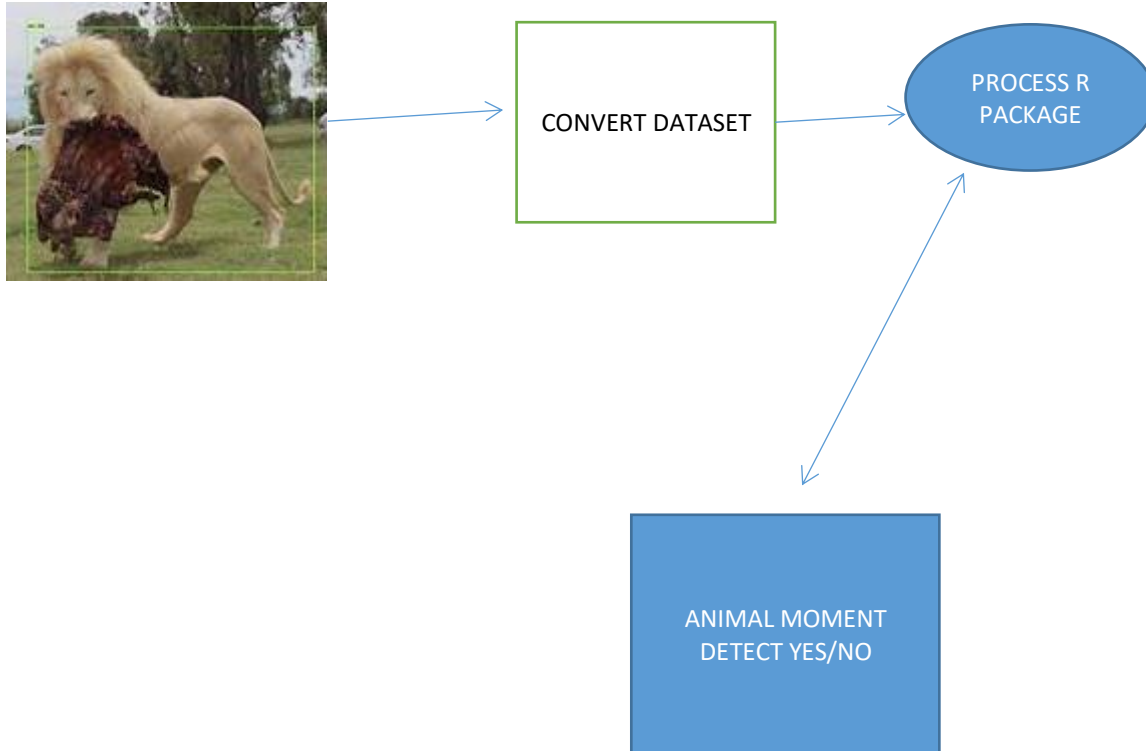
EXPERIEMENTAL RESULT

```
summary(animal_moment) Animal Name              Min temp
Max temp
 Length:98        Min.   :-3.500   Min.   : 8.40
 Class :character 1st Qu.:-0.550   1st Qu.:11.80
 Mode  :character Median : 1.350   Median :14.15
                  Mean   : 2.191   Mean   :14.30
                  3rd Qu.: 4.400   3rd Qu.:16.70
                  Max.   :10.600   Max.   :21.00
     rainall         Evaporation        Sunshine
 Min.   : 0.0000  Min.   :0.200   Min.   :0.000
 1st Qu.: 0.0000  1st Qu.:1.400   1st Qu.:4.225
 Median : 0.0000  Median :1.900   Median :7.150
 Mean   : 0.9204  Mean   :1.896   Mean   :6.198
 3rd Qu.: 0.2000  3rd Qu.:2.350   3rd Qu.:8.700
 Max.   :19.2000  Max.   :4.400   Max.   :9.600
 Wind Gust Speed Wind Speed 9 am  Wind Speed 3pm
 Min.   : 0.00   Min.   : 0.000  Min.   : 0.00
 1st Qu.:24.00   1st Qu.: 2.000  1st Qu.: 9.00
 Median :31.00   Median : 6.000  Median :16.00
 Mean   :34.27   Mean   : 8.439  Mean   :17.48
 3rd Qu.:41.00   3rd Qu.: 9.000  3rd Qu.:24.00
 Max.   :78.00   Max.   :33.000  Max.   :37.00
  Humidity 9am    Humidity 9pm     cloud 9am
 Min.   :53.00   Min.   :25.00   Min.   :0.000
 1st Qu.:75.00   1st Qu.:46.00   1st Qu.:1.000
 Median :81.00   Median :52.50   Median :4.500
 Mean   :82.12   Mean   :55.27   Mean   :4.133
 3rd Qu.:90.00   3rd Qu.:65.00   3rd Qu.:7.000
```

```
 Max.   :99.00    Max.   :96.00    Max.   :8.000
   cloud 3pm       temp 9 am        temp 3 pm
 Min.   :1.000    Min.   : 0.800   Min.   : 5.70
 1st Qu.:1.000    1st Qu.: 4.375   1st Qu.:11.03
 Median :3.500    Median : 6.600   Median :13.30
 Mean   :3.969    Mean   : 6.703   Mean   :13.21
 3rd Qu.:7.000    3rd Qu.: 8.800   3rd Qu.:15.80
 Max.   :8.000    Max.   :13.500   Max.   :20.90
 Animal moment today...16 Animal moment today...17
 Length:98                Length:98
 Class :character         Class :character
 Mode  :character         Mode  :character
```

> mean(animal_moment)[1] NAWarning message:In mean.default(animal_moment) : argument is not numeric or logical: returning NA> str(animal_moment)Classes 'tbl_df', 'tbl' and 'data.frame':   98 obs. of 17 variables:

```
$ Animal Name            : chr  "Lion" "Elephant" "Panda" "tiger" ...
$ Min temp               : num  2.1 0.5 -0.9 0.4 7.5 8.3 -0.2 0.1 1.5 8.3 ...
$ Max temp               : num  17.3 17.1 16.7 19 16.8 17.6 18.1 21 20.9 17.4 ...
$ rainall                : num  0 0 0 0 0 0 0 0 0 0 ...
$ Evaporation            : num  1.6 4 2.4 3.4 2.8 3.4 4.4 2.2 2.4 2 ...
$ Sunshine               : num  9.2 9.4 9.3 8.3 3 9.4 9.4 9.2 9.3 1.6 ...
$ Wind Gust Speed        : num  43 31 30 39 41 43 24 17 20 20 ...
$ Wind Speed 9 am        : num  6 6 2 2 7 17 0 2 2 6 ...
$ Wind Speed 3pm         : num  28 13 15 19 26 30 9 9 9 11 ...
$ Humidity 9am           : num  81 74 76 76 70 73 80 78 80 80 ...
$ Humidity 9pm           : num  38 42 42 41 53 43 44 36 41 52 ...
$ cloud 9am              : num  1 1 5 6 7 1 1 0 1 7 ...
$ cloud 3pm              : num  2 1 2 5 7 1 1 1 1 7 ...
$ temp 9 am              : num  8.7 7.4 6.2 7.7 12.5 12.4 6.7 7.6 8.4 13.5 ...
$ temp 3 pm              : num  15.9 16.2 15.4 18.5 15.4 16.5 16.9 20.7 20.9 17.2
...
$ Animal moment today...16: chr  "No" "No" "No" "No" ...
$ Animal moment today...17: chr  "No" "No" "No" "No" …
```

head(animal_moment) Animal Name Min temp Max temp rainall Evaporation Sunshine

	Animal Name	Min temp	Max temp	rainall	Evaporation	Sunshine
1	Lion	2.1	17.3	0	1.6	9.2
2	Elephant	0.5	17.1	0	4.0	9.4
3	Panda	-0.9	16.7	0	2.4	9.3
4	tiger	0.4	19.0	0	3.4	8.3
5	Jaguar	7.5	16.8	0	2.8	3.0
6	Lion	8.3	17.6	0	3.4	9.4

	Wind Gust Speed	Wind Speed 9 am	Wind Speed 3pm	Humidity 9am
1	43	6	28	81
2	31	6	13	74
3	30	2	15	76
4	39	2	19	76
5	41	7	26	70
6	43	17	30	73

	Humidity 9pm	cloud 9am	cloud 3pm	temp 9 am	temp 3 pm
1	38	1	2	8.7	15.9
2	42	1	1	7.4	16.2
3	42	5	2	6.2	15.4
4	41	6	5	7.7	18.5
5	53	7	7	12.5	15.4
6	43	1	1	12.4	16.5

	Animal moment today...16	Animal moment today...17
1	NO	NO
2	NO	NO

3	No	No
4	No	No
5	No	No
6	No	No

```
table(animal_moment$`Animal moment today...16`)
 No Yes
 83  15
table(animal_moment$`Animal Name`,animal_moment$`Animal moment today...17`)

          No Yes
 Elephant 20   1
 Jaguar   15   2
 Lion     19   3
 Panda    16   4
 tiger    12   6
dim(animal_moment)[1] 98 17
```
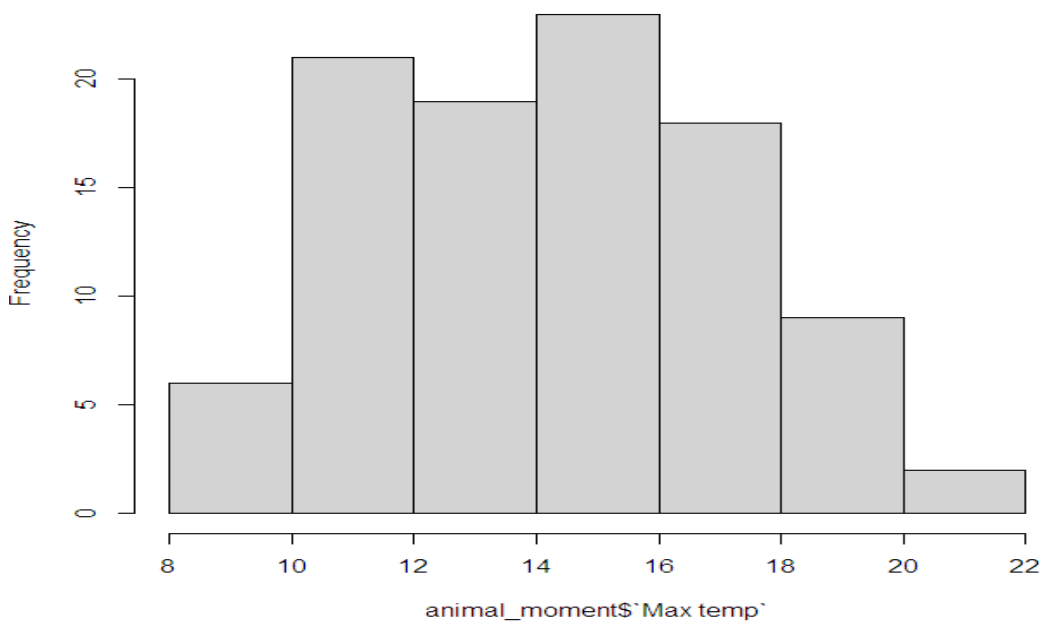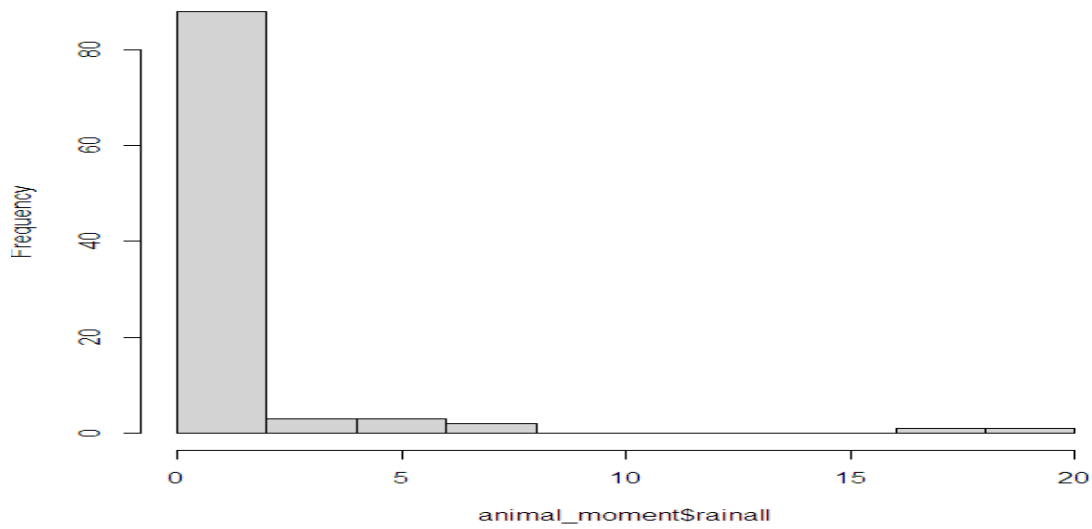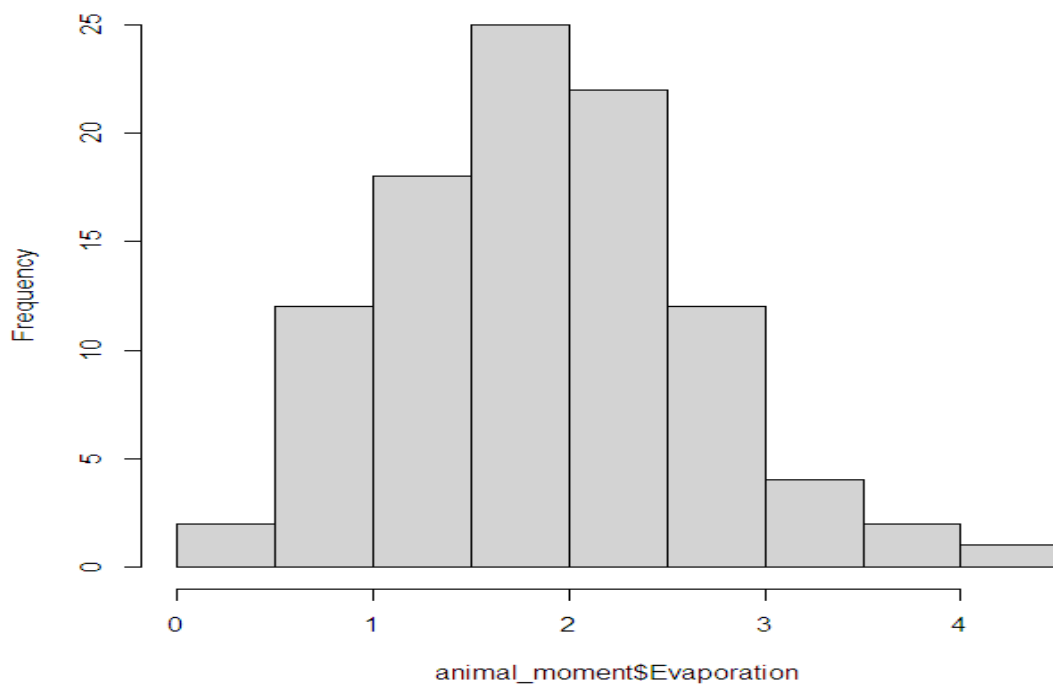

Histogram of animal_moment$`Max temp`

Histogram of animal_moment$rainall

Histogram of animal_moment$Evaporation

CONCLUSION

In this system we study the animal moment using oztrack and alert to the user using android studio.we present a comprehensive, highly ready to hand and fully crystal clear software facility for animal movement data.The OzTrack system was implemented using the open-source object-relational database system. We used R TOOL analyze and classiy the animal movement.Modify in measurement technology are allowing us to monitor animal movements with growing accuracy, precision and frequency. The magnified complexity of the data group, however, petition additional software and computer programming skills to process, store and disperse the datasets.

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