Results Report

Introduction

“Crypto coin’s market have the most confusing business and have largest trading market almost 100 trillions of dollars are already invested in it. So, we are going to predict future of market depending on past data for ease of investors for this we will use different statistical tools.”

In this project we are discussing the statistical measures of data of crypto coins. We are considering only three main con Ethereum, Bit coin, Doge. We are taking data of last month and taking all aspects under consideration we are going to find-out different graphs and applying different models like Regression model and many more to find the probability how these coins will behave in future. Also we are using market cap of coins on daily bases to predict there market share in future.

Data Description

https://coincodex.com/

Data contains per day data of last month-(4/31/2022 to 5/31/2022), for coins: Ethereum, Bitcoin, and Doge.

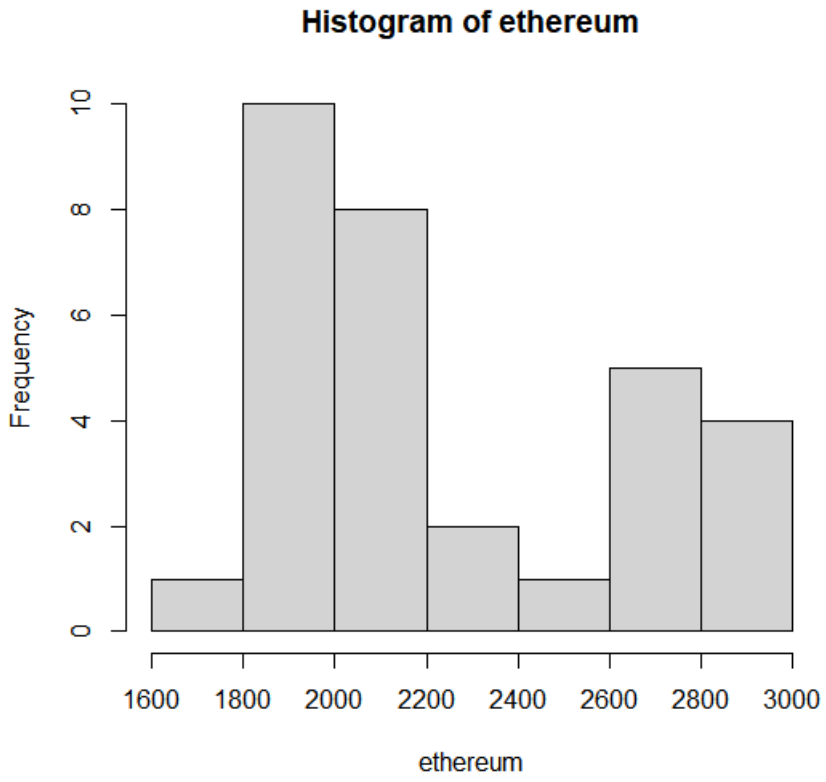
Codes

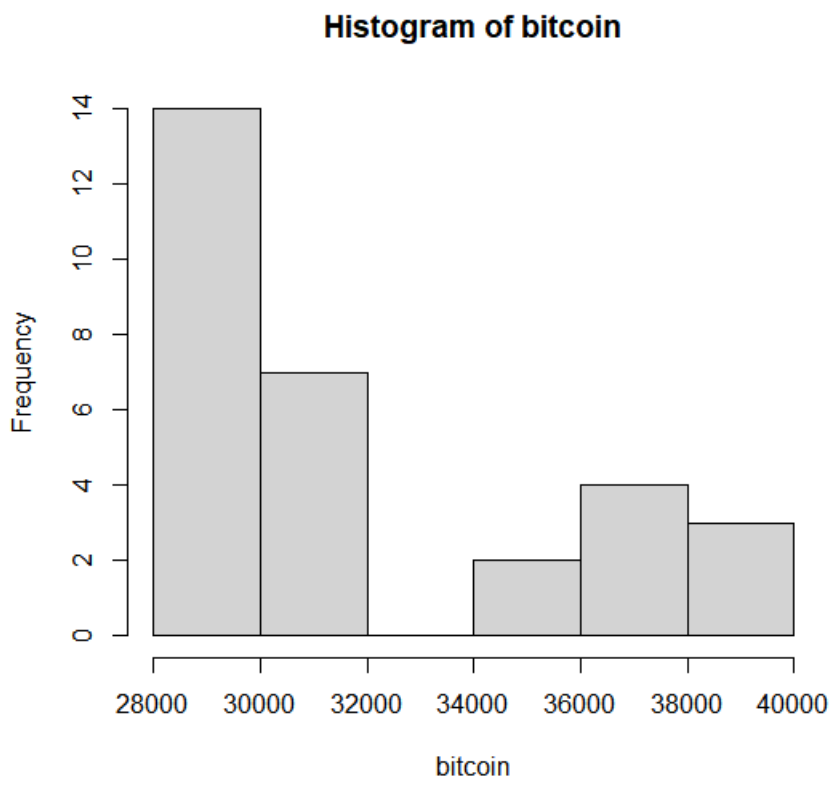
```
ethereum <-
c(2841.39,2829.07,2859.94,2784.92,2943.68,2751.91,2697.75,2639.72,2523.54,2239.57,2344.88,20
76.23,1958.58,2012.03,2058.87,2147.95,2031.38,2107.88,1929.12,2039.07,1981.41,1995.85,2061.1
5,1991.82,1992.11,1955.96,1809.49,1733.17,1814.63,1821.12)
bitcoin<-
c(29468,29031,28606,29195,29555,29655,29096,30296,29445,29205,30320,28697,30446,29833,31
293,30077,29290,29012,29044,31001,30106,34063,35479,36020,36572,39690,37724,38510,38466,
37636)
doge<-
c(0.082674,0.081897,0.081410,0.077908,0.082907,0.083591,0.083254,0.085958,0.084483,0.083877
,0.086705,0.083287,0.090201,0.087769,0.093033,0.089475,0.088141,0.082477,0.084586,0.108048,
0.102331,0.124201,0.127471,0.127813,0.128165,0.135930,0.129468,0.130800,0.132732,0.127466)
summary(ethereum)
summary(bitcoin)
summary(doge)
sdE = sd(ethereum)
sdB = sd(bitcoin)
sdD = sd(doge)
hist(ethereum)
hist(bitcoin)
hist(doge)
eMean = mean(ethereum)
bMean = mean(bitcoin)
dMean = mean(doge)
eLast= 1821.12
bLast = 37636
dLast = 0.127466
pLessE =  (eLast - eMean) / sdE
print(pLessE)
pLessB =  (bLast - bMean) / sdB
```

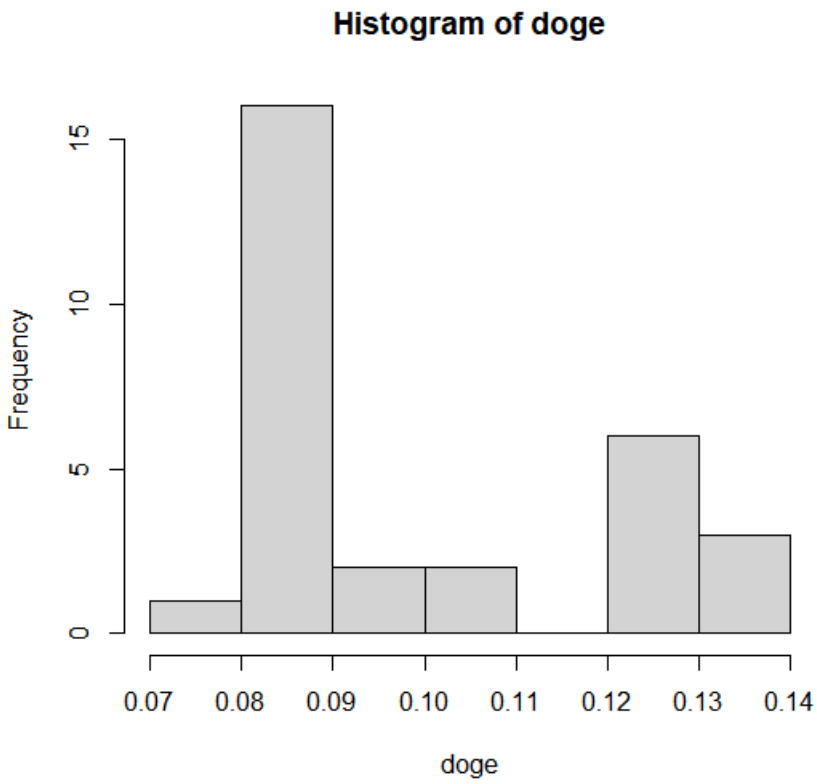
```
print(pLessB)
pLessD =  (dLast - dMean) / sdD
print(pLessD)
v =pdf_text("https://www.math.arizona.edu/~rsims/ma464/standardnormaltable.pdf")
print(v)
mCap_e<-
c(339.66,335.41,342.23,340.95,344.55,345.57,327.57,323.44,308.67,289.67,284.99,275.65,235.93,2
50.62,244.10,249.74,247.09,250.4,244.86,240.14,243.87,240.32,244.25,248.71,240.13,240.24,228.5
0,214.59,215.76,218.96)
mCap_b<-
c(583.25,555.23,550.40,550.55,561.11,566.96,558.38,573.31,567.57,558.93,567.83,562.87,563.94,5
76.73,570.95,573.62,559.87,574.59,543.92,582.28,596.37,621.85,657.63,682.60,688.13,731.32,738.
71,728.00,736.16,723.84)
mCap_d<-
c(11.29,10.84,10.86,10.50,10.60,11.03,11.04,11.43,11.31,11.17,11.34,11.28,11.60,11.88,11.70,11.82
,11.71,11.99,10.60,12.95,14.75,15.48,16.67,17.02,16.89,17.59,17.45,17.27,17.42,17.41)
eCmean= mean(mCap_e)
bCmean= mean(mCap_b)
dCmean= mean(mCap_d)
xC = c(eCmean, bCmean, dCmean)
xC
labels= c("Ethereum", "Bitcoin","Doge")
pie(xC, labels)
mCapEBill <- mCap_e * 1000000000
mCapBBill <- mCap_b * 1000000000
mCapDBill <- mCap_d * 1000000000
eCoins = mCapEBill/mCap_e
eCoins
bCoins = mCapBBill/mCap_b
bCoins
dCoins = mCapDBill/mCap_d
dCoins
cor(ethereum,mCapEBill)
cor(bitcoin,mCapBBill)
cor(doge,mCapDBill)
cov(ethereum,mCapEBill)
cov(bitcoin,mCapBBill)
cov(doge,mCapDBill)
plot(ethereum,mCap_e)
plot(bitcoin, mCap_b)
plot(doge, mCap_b)
linearRegE<-lm(eCoins~ethereum)
print(linearRegE)
linearRegB<-lm(bCoins~bitcoin)
print(linearRegB)
linearRegD<-lm(dCoins~doge)
print(linearRegD)
```

Results

```
> summary(ethereum)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   1733    1987    2061    2249    2669    2944
> summary(ethereum)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   1733    1987    2061    2249    2669    2944
> summary(bitcoin)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  28606   29226   30092   31894   35125   39690
> summary(doge)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
0.07791 0.08336 0.08796 0.09960 0.12665 0.13593
> sd(ethereum)
[1] 383.3419
> sd(bitcoin)
[1] 3654.688
> sd(doge)
[1] 0.02072311
```



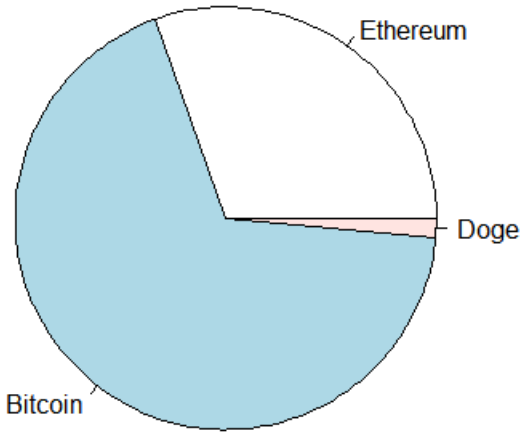

Histogram of bitcoin
Frequency
0
2
4
6
8
10
12
14
28000
30000
32000
34000
36000
38000
40000
bitcoin


Histogram of doge
Frequency
0
5
10
15
0.07
0.08
0.09
0.10
0.11
0.12
0.13
0.14
doge

Normal Distribution

```
> pLessE =  (eLast - eMean) / sdE
> print(pLessE)
[1] -1.115351
>
> pLessB =  (bLast - bMean) / sdB
> print(pLessB)
[1] 1.571032
>
> pLessD =  (dLast - dMean) / sdD
> print(pLessD)
[1] 1.344589
>
> v =pdf_text("https://www.math.arizona.edu/~rsims/ma464/standardnormaltable.pdf")
> print(v)
[1] "STANDARD NORMAL DISTRIBUTION: Table Values Represent AREA to the LEFT of the Z score.\n      z      .00      .01      .02      .03      .04      .05      .06
    .07      .08      .09\n    -3.9   .00005   .00005   .00004   .00004   .00004   .00004   .00004   .00003   .00003\n    -3.8   .00007   .00007   .00007
 .00006   .00006   .00006   .00006   .00005   .00005   .00005\n    -3.7   .00011   .00010   .00010   .00010   .00009   .00009   .00008   .00008   .00008   .00008\n
   -3.6   .00016   .00015   .00015   .00014   .00014   .00013   .00013   .00012   .00012   .00011\n    -3.5   .00023   .00022   .00022   .00021   .00020   .00019
 .00019   .00018   .00017   .00017\n    -3.4   .00034   .00032   .00031   .00030   .00029   .00028   .00027   .00026   .00025   .00024\n    -3.3   .00048   .00047
 .00045   .00043   .00042   .00040   .00039   .00038   .00036   .00035\n    -3.2   .00069   .00066   .00064   .00062   .00060   .00058   .00056   .00054   .00052
 .00050\n    -3.1   .00097   .00094   .00090   .00087   .00084   .00082   .00079   .00076   .00074   .00071\n    -3.0   .00135   .00131   .00126   .00122   .00118
```

Comparison Of Average Market Capital of the coins:




```
    3.9    .99995    .99995    .99996
> pie(xC, labels)
> eCmean= mean(mCap_e)
> bCmean= mean(mCap_b)
> dCmean= mean(mCap_d)
> xC = c(eCmean, bCmean, dCmean)
> xC
[1] 271.8857 606.8967  13.1630
>
```

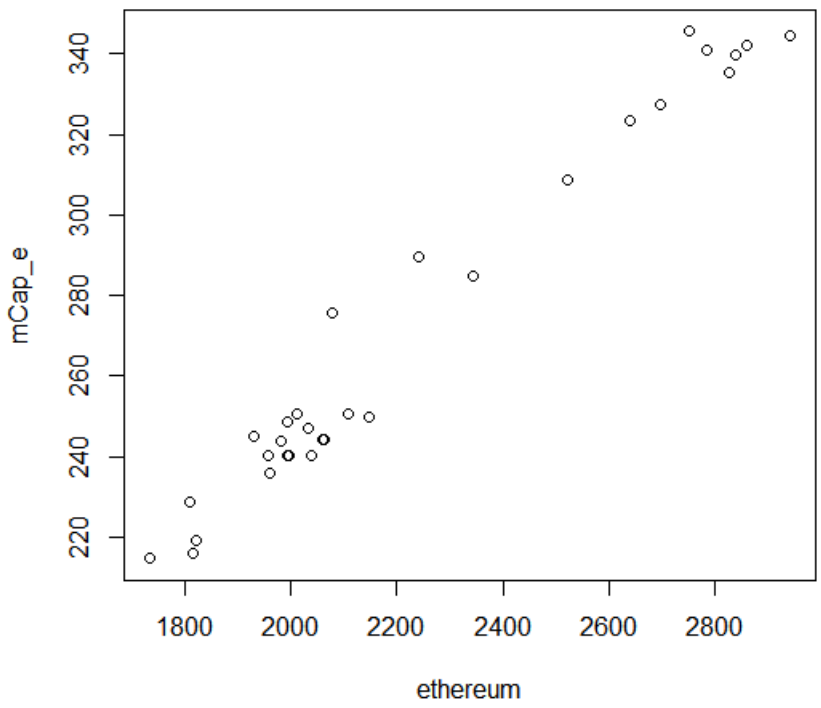
Co-Relation

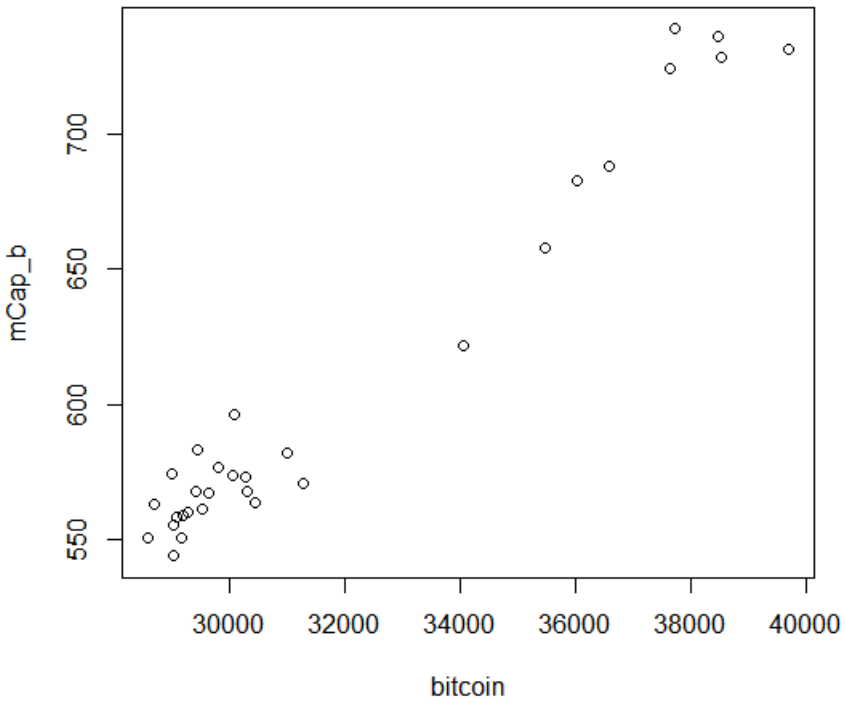
```
> cor(ethereum,mCapEBill)
[1] 0.9842983
> cor(bitcoin,mCapBBill)
[1] 0.9809189
> cor(doge,mCapDBill)
[1] 0.9831347
>
```

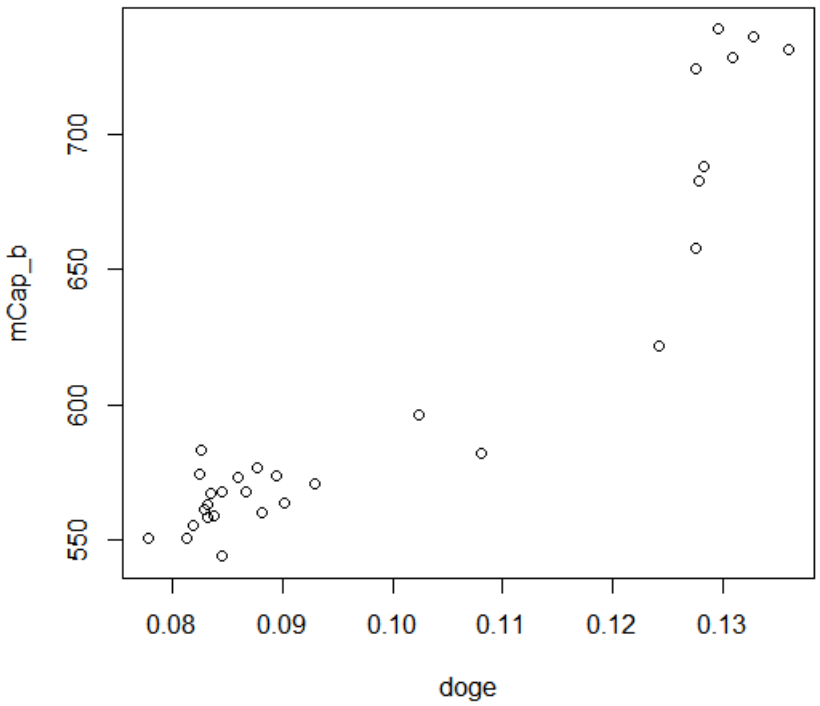
Co-Variance

```
> cov(ethereum,mCapEBill)
[1] 1.6781e+13
> cov(bitcoin,mCapBBill)
[1] 2.402163e+14
> cov(doge,mCapDBill)
[1] 55123678
>
```

Plot Graph of Coin price with its market capital







Regression Model

```
> linearRegE<-lm(eCoins~ethereum)
> print(linearRegE)

Call:
lm(formula = eCoins ~ ethereum)

Coefficients:
(Intercept)     ethereum
  1.000e+09   -2.125e-10

>
>
> linearRegB<-lm(bCoins~bitcoin)
> print(linearRegB)

Call:
lm(formula = bCoins ~ bitcoin)

Coefficients:
(Intercept)      bitcoin
  1.000e+09    5.843e-12

>
>
> linearRegD<-lm(dCoins~doge)
> print(linearRegD)

Call:
lm(formula = dCoins ~ doge)

Coefficients:
(Intercept)         doge
  1.000e+09   -3.385e-07

> |
```

Conclusion

At the end of day, histogram, Pie-chart, Scatter plot are used to depict the exploratory information of the data. Linear regression is applied on the basis of result of scatter plot and co-relation is calculated which is close to one. As for the concern of distribution of data, normal distribution is applied.