Marwadi University	**Marwadi University** **Faculty of Technology** **Department of Information and Communication Technology**	
Subject:- IRRS(01CT0106)	**Aim:-** Shark Tank Data Analysis	
Long Hour Coding	**Date:-** 08-05-2023	**Enrolment No:-** 92200133030

Prerequisites:-

1) Reading Data Set

```
# Import Dataset

A = read.csv("D:/Aryan/Semester - 2/Introduction To R and R Studio/Shark Tank US Dataset_Final.csv")
```

2) Functions:-

```
# Black Box

Solution = function(vector,num){
  freq_table = table(vector)
  ranked_vect = names(sort(freq_table,decreasing = TRUE))
  ranked_vect = ranked_vect[nzchar(ranked_vect)]
  print(ranked_vect[1:num])
}
```

```
# Vector Sum

Vector_Sum = function(vector){
  Sum = 0

  for(i in 1:length(vector)){
    Sum = Sum + vector[i]
  }

  return (Sum)
}
```

Question-1

Aim:- Which season is having the overall highest deal in terms of the amount?

Code:-

```
A$Total.Deal.Amount[is.na(A$Total.Deal.Amount)] = 0
Season = A$Season.Number[which(A$Total.Deal.Amount == max(A$Total.Deal.Amount))]
```

Output:-

```
> A$Total.Deal.Amount[is.na(A$Total.Deal.Amount)] = 0
> Season = A$Season.Number[which(A$Total.Deal.Amount == max(A$Total.Deal.Amount))]
> Season
[1] 6
>
```

Question-2

Aim:- Enlist episodes for each season having the highest deal in terms of the amount?

Code:-

```
season_unique = unique(A$Season.Number)
price_Season = c()

for(sn in season_unique){
  price = c()
  i = 1
  while(i<NROW(A)){
    if(A$Season.Number[i] == sn){
      price = append(price,A$Total.Deal.Amount[i])
    }
    i = i + 1
  }
  price[is.na(price)] = 0
  price_Season = append(price_Season,max(price))
}

Episodes = c()

Final_Episode = c()
for(i in 1:10){
  Episodes = append(Episodes,A$Episode.Number[which(price_Season[i] == A$Total.Deal.Amount)][[1]])
}
```

Output:-

```
> Episodes
 [1] 10  8  2 16  6 27  6  6  8 28
>
```

Name:- Aryan Dilipbhai Langhanoja **Enrolment No:-** 92200133030

Question-3

Aim:- Which are the top-10 deals in the shark tank?

Code:-

```
Name = c()
Highest_deal_Season = sort(A$Total.Deal.Amount,decreasing = TRUE)
Highest_deal_Season = unique(Highest_deal_Season)
Highest_deal_Season = Highest_deal_Season[1:10]

for( i in 1:10){
  Name = append(Name,A$Startup.Name[which(A$Total.Deal.Amount == Highest_deal_Season[i])][[1]])
}
```

Output:-

```
> Name
 [1] "AirCar"                      "SynDaverLabs"                "Zipz"
 [4] "TenThirtyOneHauntedHayrides" "RuggedManiac"                "XCraft"
 [7] "Trunkster"                   "HyConn"                      "TheRedDressBoutique"
[10] "HDYRSushiBars"
```

Question-4

Aim:- Top-3 Industries with highest deals in the shark tank?

Code:-

```
Industry = c()

for( i in 1:3){
  Industry = append(Industry,A$Industry[which(A$Total.Deal.Amount == Highest_deal_Season[i])][[1]])
}
```

Output:-

```
> Industry
[1] "Travel"            "Health/Wellness"   "Food and Beverage"
```

Question-5

Aim:- Which are the top-5 cities with the maximum number of entrepreneurs?

Code:-

```
Solution(A$Pitchers.City,5)
```

Output:-

```
> Solution(A$Pitchers.City,5)
[1] "Los Angeles"    "New York"       "San Francisco" "Chicago"        "Austin"
```

Question-6

Aim:- Which are the top-3 states that has got maximum number of deals?

Code:-

```
States = c()

for(i in 1:nrow(A)){
  if(A$Got.Deal[i] == 1){
    States = append(States,A$Pitchers.State[i])
  }
}

Solution(States,3)
```

Output:-

```
> Solution(States,3)
[1] "CA" "TX" "FL"
```

Question-7

Aim:- Industry wise count the total number of startups who pitched in shark tank?

Code:-

```
Industry_Table = table(A$Industry)
Data_Frame = as.data.frame(Industry_Table)
Data_Frame <- Data_Frame[order(Data_Frame$Freq),]
print(Data_Frame)
```

Output:-

```
                     Var1 Freq
1               Automotive   12
2        Business Services   17
3       Children/Education   93
4           Fashion/Beauty  167
5  Fitness/Sports/Outdoors   93
6        Food and Beverage  182
7          Green/CleanTech   11
8          Health/Wellness   36
9           Lifestyle/Home  140
10     Media/Entertainment   23
11            Pet Products   41
12           Software/Tech   60
13                  Travel   11
14         Uncertain/Other    9
```

Question-8

Aim:- Count the number of pitchers who are male, female and belongs to mixed team?

Code:-

```
Team_Table = table(A$Pitchers.Gender)
Team_Data = data.frame(Team_Table)
```

Output:-

```
> Team_Data
        Var1 Freq
1     Female  221
2       Male  535
3 Mixed Team  139
>
```

Question-9

Aim:- Find the maximum amount requested by a pitcher in each industrial segment?

Code:-

```
Industry = unique(A$Industry)

Max_Amount = c()
A$Original.Ask.Amount[is.na(A$Original.Ask.Amount)] = 0

for(i in 1:length(Industry)){
  Industry_Amount = c()
  for(j in 1:nrow(A)){
    if((A$Industry[j] == Industry[i])){
      Industry_Amount = append(Industry_Amount,A$Original.Ask.Amount[j])
    }
  }
  Max_Amount = append(Max_Amount,max(Industry_Amount))
}

Amount_Industry = data.frame(Industry,Max_Amount)
```

Output:-

```
> Amount_Industry
                   Industry Max_Amount
1           Health/Wellness    3000000
2         Food and Beverage    2500000
3         Business Services    1200000
4            Lifestyle/Home    2000000
5             Software/Tech    2000000
6        Children/Education    1500000
7                Automotive     500000
8             Fashion/Beauty    2500000
9       Media/Entertainment    5000000
10 Fitness/Sports/Outdoors    3000000
11             Pet Products     750000
12          Green/CleanTech    2000000
13                   Travel    5000000
14          Uncertain/Other     640000
```

Question-10

Aim:- Find the maximum equity received by a shark in each industrial segment

Code:-

```
Max_Equity = c()
A$Total.Deal.Equity[is.na(A$Total.Deal.Equity)] = 0

for(i in 1:length(Industry)){  #pick one industry
  Industry_Eqity = c()
  for(j in 1:nrow(A)){
    if((A$Industry[j] == Industry[i])){
      Industry_Eqity = append(Industry_Eqity,A$Total.Deal.Equity[j])
    }
  }
  Max_Equity = append(Max_Equity,max(Industry_Eqity))
}

Equity_Industry = data.frame(Industry,Max_Equity)
```

Output:-

```
> Equity_Industry
                   Industry Max_Equity
1           Health/Wellness         55
2         Food and Beverage        100
3         Business Services         50
4            Lifestyle/Home        100
5             Software/Tech         50
6        Children/Education        100
7                Automotive        100
8             Fashion/Beauty        100
9       Media/Entertainment        100
10 Fitness/Sports/Outdoors         70
11             Pet Products         60
12          Green/CleanTech         35
13                   Travel         50
14          Uncertain/Other        100
>
```

Question-11

Aim:- Find the total amount invested by each shark throughout shark tank?

Code:-

```
# Barbara_Corcora
Barbara_Corcora_Amount = A$Barbara.Corcoran.Investment.Amount[!is.na(A$Barbara.Corcoran.Investment.Amount)]
Barbara_Corcoran = Vector_Sum(Barbara_Corcora_Amount)

# Mark_Cuban
Mark_Cuban_Amount = A$Mark.Cuban.Investment.Amount[!is.na(A$Mark.Cuban.Investment.Amount)]
Mark_Cuban = Vector_Sum(Mark_Cuban_Amount)

# Lori Greine

Lori_Greine_Amount = A$Lori.Greiner.Investment.Amount[!is.na(A$Lori.Greiner.Investment.Amount)]
Lori_Greine = Vector_Sum(Lori_Greine_Amount)

# Robert Herjavec

Robert_Herjavec_Amount = A$Robert.Herjavec.Investment.Amount[!is.na(A$Robert.Herjavec.Investment.Amount)]
Robert_Herjavec = Vector_Sum(Robert_Herjavec_Amount)

# Daymond John

Daymond_John_Amount = A$Daymond.John.Investment.Amount[!is.na(A$Daymond.John.Investment.Amount)]
Daymond_John = Vector_Sum(Daymond_John_Amount)

# Kevin O Leary

Kevin_O_Leary_Amount = A$Kevin.O.Leary.Investment.Amount[!is.na(A$Kevin.O.Leary.Investment.Amount)]
Kevin_O_Leary = Vector_Sum(Kevin_O_Leary_Amount)
```

```
Data = data.frame(Shark_Name = c("Barbara Corcora","Mark Cuban","Lori Greine","Robert Herjavec","Daymond John","Kevin O Leary"),
                  c(Barbara_Corcoran,Mark_Cuban,Lori_Greine,Robert_Herjavec,Daymond_John,Kevin_O_Leary))
```

Output:-

```
> Data
       Shark_Name
1 Barbara Corcora
2      Mark Cuban
3     Lori Greine
4 Robert Herjavec
5    Daymond John
6   Kevin O Leary
  c.Barbara_Corcoran..Mark_Cuban..Lori_Greine..Robert_Herjavec..
1                                                      11740000
2                                                      37686667
3                                                      24525000
4                                                      25378166
5                                                      15809000
6                                                      17265833
> 
```

Question-12

Aim:- Name the startups with Top-15 investments

Code:-

```
Name_1 = c()
Highest_deal_Season_1 = sort(A$Total.Deal.Amount,decreasing = TRUE)
Highest_deal_Season_1 = unique(Highest_deal_Season_1)
Highest_deal_Season_1 = Highest_deal_Season_1[1:15]

for( i in 1:15){
  Name_1 = append(Name_1,A$Startup.Name[which(A$Total.Deal.Amount == Highest_deal_Season_1[i])][[1]])
}
```

Output:-

```
> Name_1
 [1] "AirCar"                    "SynDaverLabs"
 [3] "Zipz"                      "TenThirtyOneHauntedHayrides"
 [5] "RuggedManiac"              "XCraft"
 [7] "Trunkster"                 "HyConn"
 [9] "TheRedDressBoutique"       "HDYRSushiBars"
[11] "sunscreeenr"               "FirstDefenseNasalScreen"
[13] "ZinePak"                   "Fixed"
[15] "EmazingLights"
>
```

Question-13

Aim:- Find number of deals having [1,2,3,4,5] sharks included in the deal?

Code:-

```
Sharks_No = c(0,0,0,0,0)

for(i in 1:length(Sharks)){
  if(Sharks[i] == 1){
    Sharks_No[1] = Sharks_No[1]  + 1
  } else if(Sharks[i] == 2){
    Sharks_No[2] = Sharks_No[2]  + 1
  } else if(Sharks[i] == 3){
    Sharks_No[3] = Sharks_No[3]  + 1
  } else if(Sharks[i] == 4){
    Sharks_No[4] = Sharks_No[4]  + 1
  } else if(Sharks[i] == 5){
    Sharks_No[5] = Sharks_No[5]  + 1
  }
}

Frame = data.frame(No_Of_Sharks = 1:5,No_Of_Start_Up = Sharks_No)
```

Output:-

```
> Frame
  No_Of_Sharks No_Of_Start_Up
1            1            360
2            2            111
3            3             13
4            4              1
5            5              5
> 
```

Question-14

Aim:- Which are the top-3 industries where "Kevin O Leary" is more interested to invest into?

Code:-

```
A$Kevin.O.Leary.Investment.Amount[is.na(A$Kevin.O.Leary.Investment.Amount)] = 0
Industry_Kevin = c()

for(i in 1:length(A$Kevin.O.Leary.Investment.Amount)){
  if(A$Kevin.O.Leary.Investment.Amount[i] > 0){
    Industry_Kevin = append(Industry_Kevin,A$Industry[i])
  }
}

Solution(Industry_Kevin,3)
```

Output:-

```
> Solution(Industry_Kevin,3)
[1] "Lifestyle/Home"     "Food and Beverage"  "Children/Education"
> 
```

Question-15

Aim:- Which are the 3 least favoured industries by the sharks?

Code:-

```
Industry = A$Industry[A$Total.Deal.Amount != 0]

Least_Industry = table(Industry)
Ranked_Least_Industry = names(sort(Least_Industry,decreasing = FALSE))
Ranked_Least_Industry = Ranked_Least_Industry[-1]
```

Output:-

```
> Ranked_Least_Industry
 [1] "Travel"                  "Business Services"
 [3] "Green/CleanTech"         "Automotive"
 [5] "Media/Entertainment"     "Health/Wellness"
 [7] "Pet Products"            "Software/Tech"
 [9] "Children/Education"      "Fitness/Sports/Outdoors"
[11] "Lifestyle/Home"          "Fashion/Beauty"
[13] "Food and Beverage"
>
```