NPTEL DATA SCIENCE FOR ENGINEERS

ASSIGNMENT 1- SOLUTION

1. State whether the following statements are **True or False**.

   I. R has an effective data handling and storage facility
   II. R provides collection of packages for data analysis

Answer:

I - True, II – True

Both the statements are true

2. The operator used to identify if an element belongs to a vector is:-

Answer:

%in%

This operator is a part of Miscellaneous Operators and is used to identify if an element belongs to a vector or not.

3. For which of the operators listed below, the result of comparison between two vectors will return a boolean value?

Answer:

Relational and Logical operator

The result of comparison between the two vectors will give Boolean value for both relational and logical operators.

Create a list using the table given below and define it as **"games_list"** and answer the questions 4 and 5.

ID	Name	Favorite sport	Favorite Player
1	Akash	Cricket	M S Dhoni
2	Hemanth	Football	Ronaldo
3	Ravi	Basketball	Kobe Bryant
4	Tina	Badminton	P V Sindhu
5	Sudan	Volleyball	Jimmy George

4. What is the command to print the element “Badminton” in the console?

Answer:

print(game_list[[3]][4])

CODE:

```
> id = c(1,2,3,4,5)
> name =c("Akash","Hemanth","Ravi","Tina","Sudan")
> fav_sport = c("Cricket","Football","Basketball","Badminton","Volleyball")
> fav_player = c("M S Dhoni","Ronaldo","Kobe Bryant","P V Sindu","Jimmy George")
> game_list = list(id,name,fav_sport,fav_player)
> print(game_list[[3]][4])
[1] "Badminton"
```

5. What is the correct command to modify or replace the element “Kobe Bryant” with “Lebron James”?

Answer:

game_list[[4]][3]= “Lebron James”

CODE:

```
> game_list[[4]][3]= "Lebron James"
> print(game_list[[4]])
[1] "M S Dhoni"    "Ronaldo"      "Lebron James" "P V Sindu"    "Jimmy George"
```

6. The output of the code given below is

Answer:

1 4 9 36

CODE:

```
> data=c(1,2,3,6)
> A= 0
>
> for(i in 1:4)
+ {
+     A[i]=data[i]*data[i]
+     print(A[i])
+ }
[1] 1
[1] 4
[1] 9
[1] 36
```

7. The output of the code given below is

Answer:

1 6 11

CODE:

```
> A=matrix(1:16,nrow=4,ncol=4)
>
> for (i in 1:4)
+ {
+     for (j in 1:3)
+     {
+         if (i==j)
+         {
+             print(A[i,j])
+         }
+     }
+ }
[1] 1
[1] 6
[1] 11
```

8. Which of the following argument is used to set the point shapes in the plot() function?

Answer:

pch

pch is used add different symbols in plot to represent the points

9. _____ function determines the type of storage mode of any object

Answer:

typeof()

typeof determines the (R internal) type or storage mode of any object

10. The function that concatenates multiple vectors into a single vector along with a factor indicating where each observation originated is

Answer:

Stacking

Stacking vectors concatenates multiple vectors into a single vector along with a factor indicating where each observation originated. Unstacking reverses this operation.

11. _____ package which is dedicated for data visualization in R

Answer:

ggplot2

The ggplot2 package, created by Hadley Wickham, offers a powerful graphics language for creating elegant and complex plots.

12. ____ function adds multiple graphs in a single plot by setting graphical parameters.

Answer:

par()

We can put multiple graphs in a single plot by setting some graphical parameters with the help of par() function. R programming has a lot of graphical parameters which control the way our graphs are displayed. The par() function helps us in setting or inquiring about these parameters.