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SLOT – L55+L56

FDA LAB ASSIGNMENT 4-

1.Create the following dataframe df:

Playerdata

names ages

1 Adam 23

2 Antony 22

3 Brian 24

4 Carl 25

5 Doug 26

CODE-

Create the dataframe

df <- data.frame(

names = c("Adam", "Antony", "Brian", "Carl", "Doug"),

ages = c(23, 22, 24, 25, 26)

)

Print the dataframe

print(df)

OUTPUT-

```
# Create the dataframe
df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)
# Print the dataframe
print(df)
```

```
   names ages
1  Adam   23
2 Antony   22
3  Brian   24
4  Carl   25
5  Doug   26
> |
```

2. Write a R program to get the structure of a given data frame.

CODE-

```
df <- data.frame(

  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),

  ages = c(23, 22, 24, 25, 26)

)

# Print the structure of the dataframe

str(df)
```

OUTPUT-

```
df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)
# Print the structure of the dataframe
str(df)
```

```
'data.frame':  5 obs. of  2 variables:
 $ names: chr  "Adam" "Antony" "Brian" "Carl" ...
 $ ages : num  23 22 24 25 26
> |
```

3. Write a R program to get the statistical summary and nature of the data of a given data frame.

CODE-

```
df <- data.frame(

  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),

  ages = c(23, 22, 24, 25, 26)

)

# Print the statistical summary

summary(df)

# Get the nature of the data

nrow(df) # Number of rows

ncol(df) # Number of columns

head(df) # Display the first few rows of the dataframe
```

OUTPUT-

```
df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)
# Print the statistical summary
summary(df)
# Get the nature of the data
nrow(df) # Number of rows
ncol(df) # Number of columns
head(df) # Display the first few rows of the dataframe
```

```

> summary(df)
      names      ages
Length:5      Min.   :22
Class :character 1st Qu.:23
Mode  :character Median :24
                        Mean  :24
                        3rd Qu.:25
                        Max.   :26
> # Get the nature of the data
> nrow(df) # Number of rows
[1] 5
> ncol(df) # Number of columns
[1] 2
> head(df) # Display the first few rows of the dataframe
  names ages
1  Adam  23
2 Antony  22
3  Brian  24
4   Carl  25
5   Doug  26
> |

```

4. Write a R program to extract specific column from a data frame using column name.

CODE-

Create a sample dataframe

```

df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)

```

Extract a specific column using the \$ operator

```
column1 <- df$names
```

```
print(column1)
```

Extract a specific column using the [[operator

```
column2 <- df[["ages"]]
```

```
print(column2)
```

OUTPUT-

```
# Create a sample dataframe
df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)
# Extract a specific column using the $ operator
column1 <- df$names
print(column1)
# Extract a specific column using the [[ operator
column2 <- df[["ages"]]
print(column2)

> # Extract a specific column using the $ operator
> column1 <- df$names
> print(column1)
[1] "Adam"    "Antony"  "Brian"   "Carl"    "Doug"
> # Extract a specific column using the [[ operator
> column2 <- df[["ages"]]
> print(column2)
[1] 23 22 24 25 26
> |
```

5. Write a R program to extract first two rows from a given data frame.

CODE-

```
df <- data.frame(

  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),

  ages = c(23, 22, 24, 25, 26)

)

# Extract the first two rows

first_two_rows <- df[1:2, ]

print(first_two_rows)
```

OUTPUT-

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26)  
)  
# Extract the first two rows  
first_two_rows <- df[1:2, ]  
print(first_two_rows)
```

```
   names ages  
1  Adam   23  
2 Antony   22  
> |
```

6. Write a R program to add a new column Player_ID in a given data frame.

CODE-

```
df <- data.frame(  
  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  
  ages = c(23, 22, 24, 25, 26)  
  
)  
  
# Add a new column Player_ID  
  
df$Player_ID <- c(1, 2, 3, 4, 5)  
  
print(df)
```

OUTPUT-

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26)  
)  
# Add a new column Player_ID  
df$Player_ID <- c(1, 2, 3, 4, 5)  
print(df)
```

```

      names ages Player_ID
1   Adam   23         1
2 Antony   22         2
3   Brian   24         3
4   Carl   25         4
5   Doug   26         5
> |

```

7. Write a R program to extract 3rd and 5th rows with 1st and 3rd columns from a given data frame.

CODE-

```

df <- data.frame(

  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),

  ages = c(23, 22, 24, 25, 26)

)

df$Player_ID <- c(1, 2, 3, 4, 5)

extracted_data <- df[c(3, 5), c(1, 3)]

print(extracted_data)

```

OUTPUT-

```

df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)
df$Player_ID <- c(1, 2, 3, 4, 5)
extracted_data <- df[c(3, 5), c(1, 3)]
print(extracted_data)

      names Player_ID
3   Brian         3
5   Doug         5
> |

```

8. Write a R program to add new row(s) to an existing data frame.

CODE-

Create the dataframe

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26)  
)
```

```
new_rows <- data.frame(  
  names = c("John", "Peter"),  
  ages = c(27, 21)  
)
```

Add new row(s) to the existing data frame

```
df <- rbind(df, new_rows)
```

Print the updated data frame

```
print(df)
```

OUTPUT-

```
# Create the dataframe  
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26)  
)  
new_rows <- data.frame(  
  names = c("John", "Peter"),  
  ages = c(27, 21)  
)  
# Add new row(s) to the existing data frame  
df <- rbind(df, new_rows)  
# Print the updated data frame  
print(df)
```


	names	ages
1	Adam	23
2	Antony	22
3	Brian	24
4	Carl	25
5	Doug	26
6	John	27
7	Peter	21

> |

9. Write a R program to drop column(s) by name from a given data frame.

CODE-

```
df <- data.frame(

  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),

  ages = c(23, 22, 24, 25, 26)

)

# Add a new column Player_ID

df$Player_ID <- c(1, 2, 3, 4, 5)

print(df)

# Drop column(s) by name

df <- df[, !colnames(df) %in% c("ages", "names")]

# Print the updated dataframe

print(df)
```

OUTPUT-

```
df <- data.frame(
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),
  ages = c(23, 22, 24, 25, 26)
)
# Add a new column Player_ID
df$Player_ID <- c(1, 2, 3, 4, 5)
print(df)
# Drop column(s) by name
df <- df[, !colnames(df) %in% c("ages", "names")]
# Print the updated dataframe
print(df)
```

```
[1] 1 2 3 4 5  
>
```

10. Write a R program to drop row(s) by number from a given data frame.

CODE-

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26)  
)  
  
# Drop row(s) by number  
df <- df[-c(2, 4), ]  
  
# Print the updated dataframe  
print(df)
```

OUTPUT-

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26)  
)  
# Drop row(s) by number  
df <- df[-c(2, 4), ]  
# Print the updated dataframe  
print(df)
```

```
  names ages  
1  Adam  23  
3 Brian  24  
5  Doug  26  
> |
```

FACTORS.

1. Write a R program to sort a given data frame by multiple column(s).

CODE-

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26),  
  ID = c(1, 2, 3, 4, 5)  
)
```

Sort the dataframe by multiple columns

```
df <- df[order(df$ages, df$ID), ]
```

Print the sorted dataframe

```
print(df)
```

OUTPUT-

```
df <- data.frame(  
  names = c("Adam", "Antony", "Brian", "Carl", "Doug"),  
  ages = c(23, 22, 24, 25, 26),  
  ID = c(1, 2, 3, 4, 5)  
)  
# Sort the dataframe by multiple columns  
df <- df[order(df$ages, df$ID), ]  
# Print the sorted dataframe  
print(df)
```

```
  names ages ID  
2 Antony  22  2  
1  Adam   23  1  
3  Brian  24  3  
4  Carl   25  4  
5  Doug   26  5  
> |
```

2. Write a R program to change the first level of a factor with another level of a given factor.

CODE-

```
# Create a sample factor

factor_var <- factor(c("A", "B", "C", "A", "B"))

# Change the first level with another level

factor_var <- relevel(factor_var, ref = "C")

# Print the updated factor

print(factor_var)
```

OUTPUT-

```
# Create a sample factor
factor_var <- factor(c("A", "B", "C", "A", "B"))
# Change the first level with another level
factor_var <- relevel(factor_var, ref = "C")
# Print the updated factor
print(factor_var)
```

```
[1] A B C A B
Levels: C A B
>
```

-----X-----

Thank you!