

DATA VISUALIZATION

R INTEGRATION WITH TABLEAU

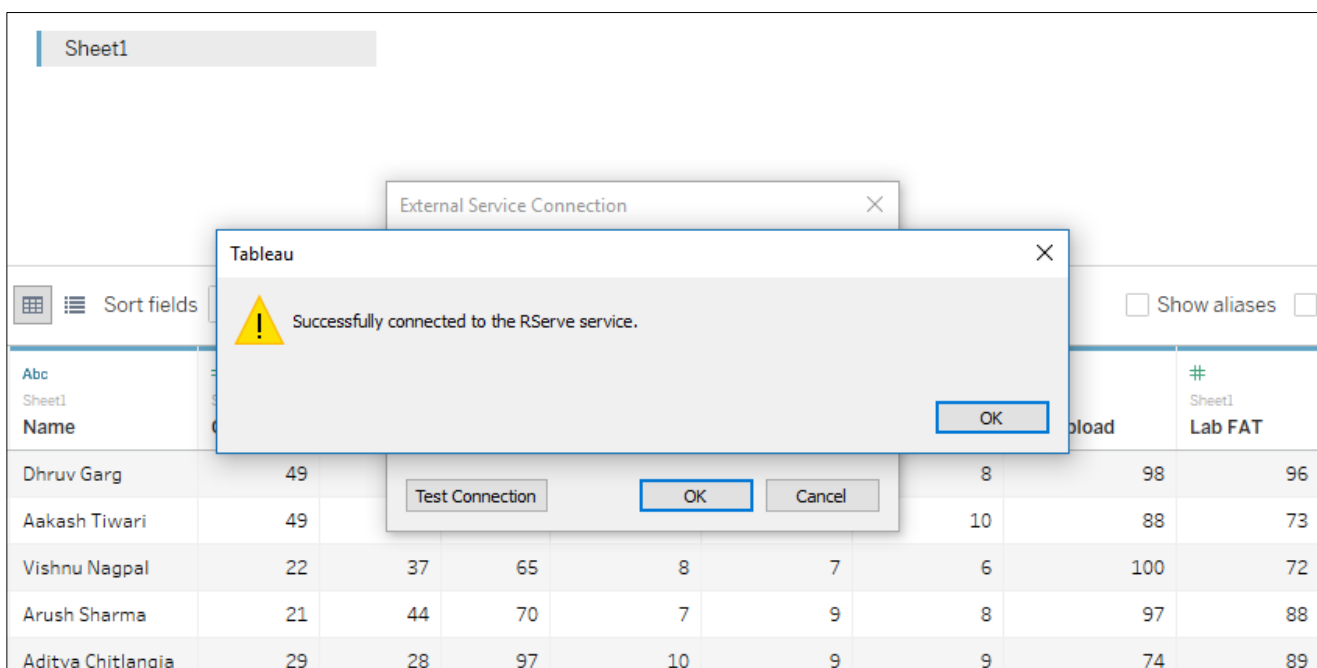
STEP 1: Create the dataset “student Marks” in an Excel sheet. Used RANDBETWEEN() function to enter data.

Name	CAT 1	CAT 2	FAT	Digital 1	Digital 2	Digital 3	Lab upload	Lab FAT	Review 1	Review 2	Review 3
Dhruv Garg	49	49	100	9	7	8	98	96	17	27	49
Aakash Tiwari	49	40	65	8	7	10	88	73	18	30	50
Vishnu Nagpal	22	37	65	8	7	6	100	72	20	29	37
Arush Sharma	21	44	70	7	9	8	97	88	18	27	35
Aditya Chitlangia	29	28	97	10	9	9	74	89	20	29	41
Chahat Agarwal	24	49	82	9	9	8	97	98	18	28	35
Swaraj Phadtare	22	20	91	10	9	9	71	89	18	29	41
Shantanu Gupta	26	30	64	7	7	7	84	73	18	29	50
Rachit Tiwary	35	21	66	9	7	8	83	89	17	26	47
Abhinav Sharma	39	38	64	7	9	10	98	80	19	27	39
Prakhar Mishra	36	42	72	7	8	7	73	80	19	26	35
Shivam Rathi	47	22	72	6	6	6	74	83	20	29	48
Mayank Ranjan	33	29	77	6	9	8	94	94	20	28	35
Raagul Nagendran	21	43	77	6	6	9	83	86	17	26	49
Aravind Krishnan	30	36	79	10	9	7	99	72	18	25	39
Raghu Vamsi	40	23	81	8	8	6	86	78	18	28	38
Natesh Balaji	37	23	65	8	7	7	97	88	20	25	44
Reuben Verghese	28	27	83	6	6	8	74	84	19	29	50
Satyarth Gohil	29	43	88	6	9	9	78	75	18	26	48
Pranjal Srivastava	31	40	60	6	6	7	76	93	18	28	49

STEP 2: Start R Server on local host.

```
> library("Rserve")
> Rserve()
Starting Rserve...
"C:\Users\dhruv\DOCUMENTS\WIN-LI~1\3.4\Rserve\libs\x64\Rserve.exe"
> |
```

STEP 3: Import the dataset “student Marks” into Tableau and connect to the Rserve() service on localhost.



STEP 4: Create various calculated fields using the “Analysis” tab in Tableau

Calculated field: Theory total

Theory Total

×

```
SUM([Cat 1]*0.15)+[Cat 2]*0.15+[FAT]*0.4+  
[Digital 1]+[Digital 2]+[Digital 3])
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

Calculated field: Lab Total

Lab Total

×

```
SUM([Lab upload]*0.6)+([Lab FAT]*0.4))|
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

Calculated field: Project Total

Project Total

×

```
SUM([Review 1]+[Review 2]+[Review 3])
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

Calculated field: Grand Total

Grand Total

×

```
SUM(((Cat 1]*0.15)+([Cat 2]*0.15)+([FAT]*0.4)+  
[Digital 1]+[Digital 2]+[Digital 3])*2+  
([Lab upload]*0.6)+([Lab FAT]*0.4)+  
[Review 1]+[Review 2]+[Review 3])/4
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

Calculated field: Grade

Grade

×

```
IF [Grand Total] >= 90  
THEN "S"  
ELSEIF [Grand Total] >= 80  
THEN "A"  
ELSEIF [Grand Total] >= 70  
THEN "B"  
ELSEIF [Grand Total] >= 60  
THEN "C"  
ELSEIF [Grand Total] >= 50  
THEN "D"  
ELSEIF [Grand Total] >= 40  
THEN "E"  
ELSE "F"  
END
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

STEP 5: Create parameter fields

First create a parameter field called “Placeholder 1 selector” using data type string and enter the field names.

Edit Parameter [Placeholder 1 selector]

Name: Placeholder 1 selector

Comment >>

Properties

Data type: String

Current value: Project Total

Display format:

Allowable values: ☐ All ☒ List ☐ Range

List of values

Value	Display As
Grand Total	Grand Total
Lab Total	Lab Total
Project Total	Project Total
Theory Total	Theory Total
Add	

Add from Parameter

Add from Field

Paste from Clipboard

Clear All

OK

Cancel

Create a duplicate parameter field named “Placeholder 2 selector” as well.

STEP 6: Create calculated fields for the placeholder selectors.

First create the field “Placeholder 1” and write the fields using a switch-case statement.

Placeholder 1

```
CASE [Placeholder 1 selector]
WHEN "Grand Total" THEN [Grand Total]
WHEN "Lab Total" THEN [Lab Total]
WHEN "Project Total" THEN [Project Total]
WHEN "Theory Total" THEN [Theory Total]
END
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

Now create a duplicate and rename it as “Placeholder 2”.

STEP 7: To use the computational power of R, we define a correlation on the two Placeholders.

Correlation

Results are computed along Table (across).

`cor(.arg1, .arg2)", ([Placeholder 1]), ([Placeholder 2]))`

The calculation is valid.

Sheets Affected ▾

Apply

OK

Default Table Calculation

STEP 8: Drag and drop the following measures to the corresponding row/column/mark fields as shown in the figures.

Columns

AGG(Placeholder 2)

Rows

AGG(Placeholder 1)

Marks

Automatic

Color

Size

Label

Detail

Tooltip

Shape

Name

AGG(Grade)

Correlation

STEP 9: Right click on the two Placeholder selectors in the “Parameters” field and select “Show parameter control”

Placeholder 1 selector

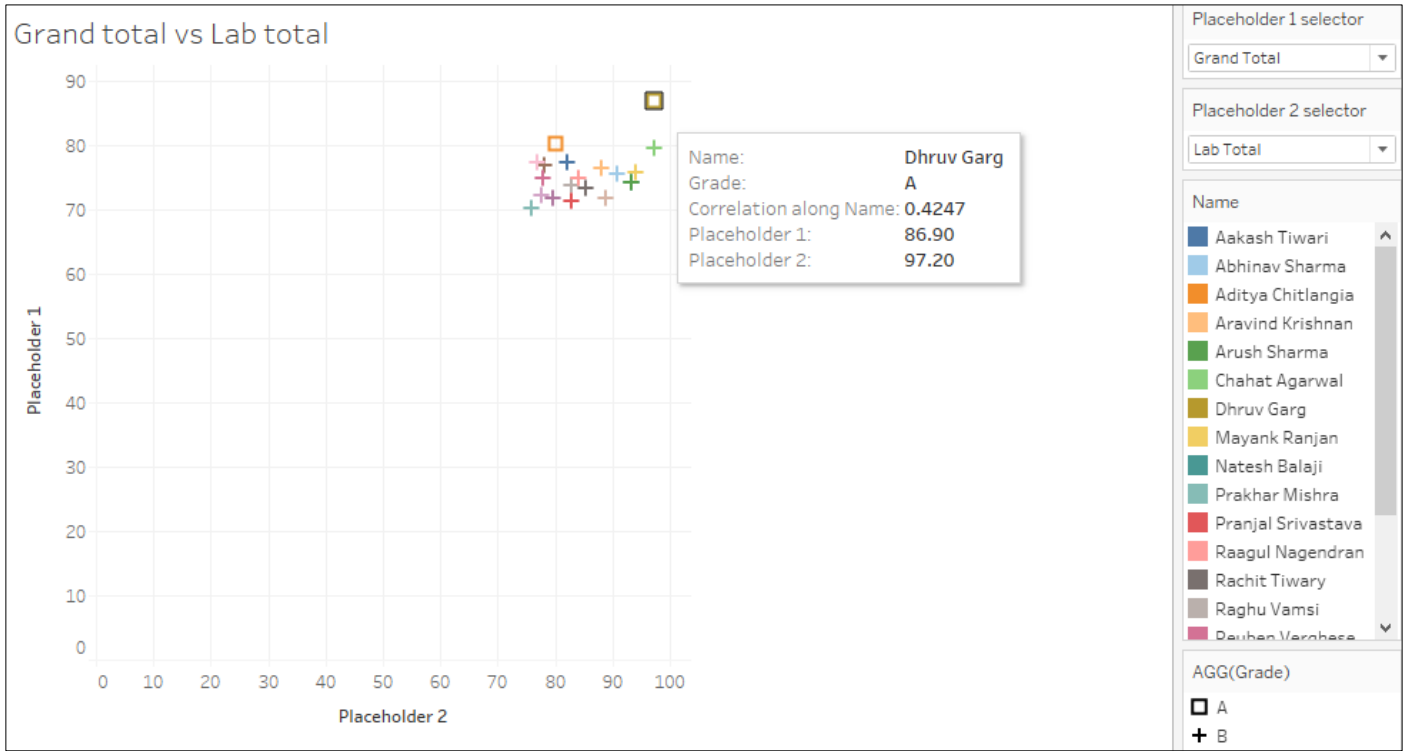
Grand Total ▾

Placeholder 2 selector

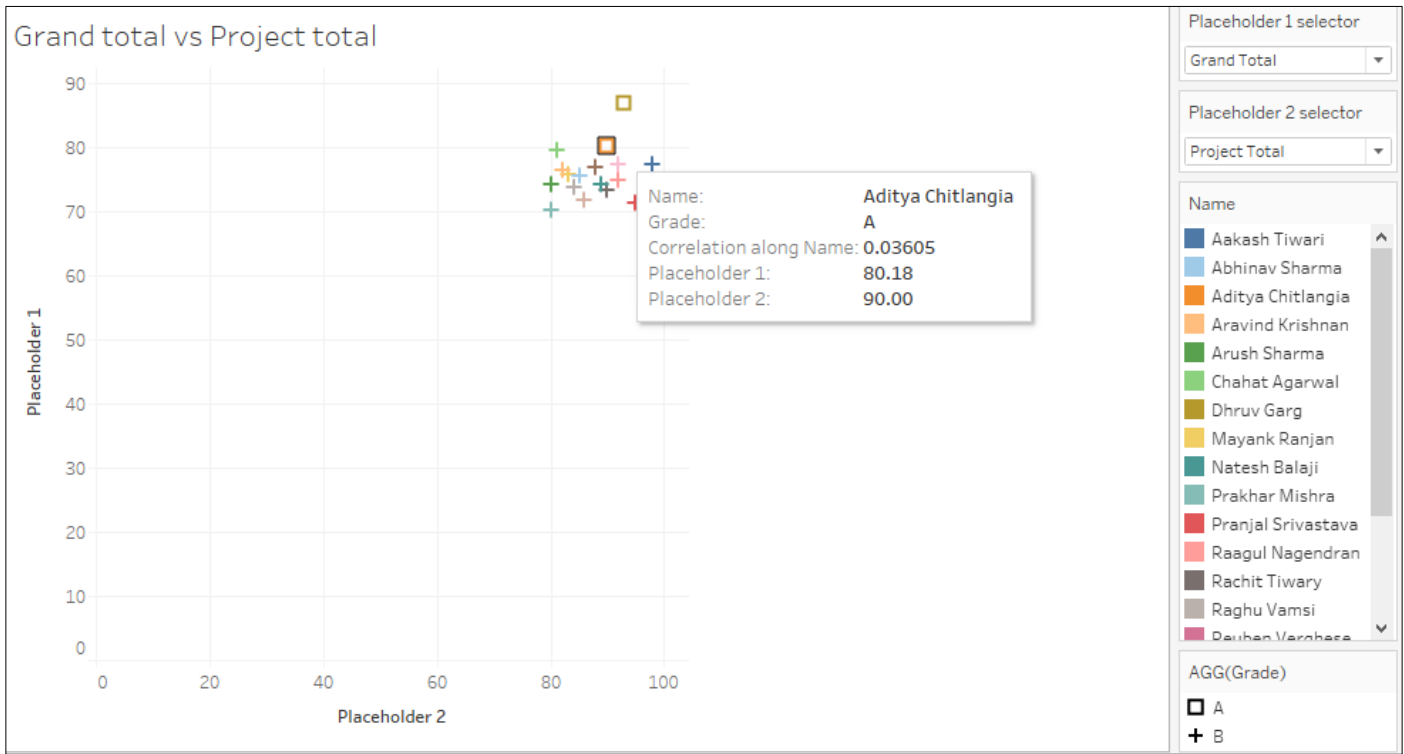
Lab Total ▾

PLOTS drawn on Tableau - CORRELEATION COEFFICIENT computed on R

PLOT 1



PLOT 2



PLOT 3

