

RESULT ANALYSIS PROJECT

STEPS OF THE ENTIRE PROJECT

Page 1

Step 1: DAX Measures (for Page 1 – Overall Summary)

Measure Name	Formula (Use exactly as below)	Purpose
Total Students	Total Students = COUNTROWS(Marks_Table)	Total number of students
Total Present Students	Present = CALCULATE(COUNTROWS(Marks_Table), Marks_Table[No. of Subjects Absent] = 0)	Students with no absent subjects
Present %	Present % = DIVIDE([Total Present Students], [Total Students], 0) * 100	% of students present in all subjects
Total Passed Students	Passed = CALCULATE(COUNTROWS(Marks_Table), Marks_Table[Result] = "PASS")	Students who passed all subjects
Pass %	Pass % = DIVIDE([Total Passed Students], [Total Students], 0) * 100	% of total students passed
Average Marks	Average Marks = AVERAGE(Marks_Table[Total Marks])	Mean of total marks
Average %	Average % = AVERAGE(Marks_Table[Percentage])	Mean of overall percentage

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Prep (one-time, recommended)

Create an unpivoted table for subject visuals (keep the original Marks_Table for student-wise visuals).

1. **Home → Transform data** (opens Power Query).
2. In Queries list, **right-click Marks_Table → Reference**. Rename new query to **SubjectMarks**.
3. In SubjectMarks select the 6 subject columns: **Science, Social, Lang II, English, Maths, Arabic** → **Transform → Unpivot Columns**.
 - Rename Attribute → **Subject**, Value → **Mark**.
 - Set **Mark** to *Whole Number/Decimal* and **Subject** to *Text*.
4. **Close & Apply**.

Why do this? SubjectMarks makes Subject-wise averages and the subject bar chart trivial (Axis = Subject, Value = Avg Mark).

Helper measures for visuals

Student Count = COUNTROWS(Marks_Table)

Rank by Total Marks

Rank =

RANKX(

ALLSELECTED(Marks_Table),

CALCULATE(SUM(Marks_Table[Total Marks])),

,

DESC,

SKIP

)

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Rank Asc Total Marks =

Sr. No =

RANKX(

ALLSELECTED(Marks_Table),

CALCULATE(SUM(Marks_Table[Total Marks])),

,

ASC,

SKIP

)

Avg Subject Mark (present only) =

CALCULATE(AVERAGE(SubjectMarks[Mark]), SubjectMarks[Mark] > 0)

Format Present %, Pass %, Average % as **Percentage** (Modeling → Format).

Format Average Marks and Average % to 2 decimals as you prefer.

Build Page 1 visuals — step by step

1) Add KPIs (Cards)

- **Insert → Card** (or use Multi-row card for compact layout).
- Drag measures into cards:
 - Total Students
 - Total Present Students (and a separate card for Present %)
 - Total Passed Students (and separate card for Pass %)
 - Average Marks
 - Average %
- **Format:** turn on Data label; set decimals; give titles in Visual → Format → Title.

Format: turn on Data label; set decimals; give titles

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After you drag a measure into a Card visual:

1. Turn on Data Label

- Click on the **Card visual**.
- In the right pane, go to **Visualizations → Format (paint roller icon) → Data label**.
- Toggle it **On**.
- This ensures the value (e.g., Total Students = 120) is visible on the card.

2. Set Decimals (for percentages or averages)

- Still under **Data label**, you can find **Display units** and **Decimal places**.
- For percentages like Pass % or Present %, set **Decimal places = 2**.
- For whole numbers like Total Students, keep **Decimal places = 0**.

3. Give Titles

- Go to **Visual → Format → Title**.
- Toggle **Title = On**.
- Set **Title Text** as Total Students, Average Marks, etc.
- You can also format font size, color, alignment, background for clarity.

 **Purpose:** Makes the KPI cards readable, precise, and self-explanatory for the dashboard viewers.

- Arrange them across the top.

Arrange them across the top

- Select each Card visual → move and resize.
- Align them **horizontally across the top** of your dashboard page.
- You can use **View → Snap to grid / Align** to make them look tidy.
- Recommended layout:
 - 1st row: Total Students | Present Students | Present %

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- 2nd row: Total Passed | Pass % | Average Marks | Average %

Purpose: Organizes KPIs logically so viewers can quickly get the overall summary at a glance.

2) Donut Chart — Result Distribution

- **Insert → Donut chart.**
 - **Legend:** Marks_Table[Result]
 - **Values:** Student Count (or COUNTROWS(Marks_Table))
 - Format: show data labels, percent display. Color the slices: Pass = green, Fail = red, Absent = amber.
-

3) Bar chart — Subject-wise Average Marks

(use SubjectMarks)

- **Insert → Clustered column chart (or bar).**
- **Axis:** SubjectMarks[Subject]
- **Values:** Avg Subject Mark
- Format: Data labels on, sort by value descending.
- If you want to exclude absentees (0) in average, modify Avg Subject Mark measure:

Avg Subject Mark (present only) =

CALCULATE(AVERAGE(SubjectMarks[Mark]), SubjectMarks[Mark] > 0)

4) Histogram — Overall Marks Distribution (Percentage bins)

Two ways: **create bins** or use the MarkRange column if you have it.

A — Create bins quickly

B — If you created MarkRange column earlier, use it as Axis instead.

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Recommended: Create a proper MarkRange column (DAX) and sort it

This is the cleanest solution. You create two calculated columns:

1. MarkBucketStart → numeric start of the bucket (0, 10, 20, ...)

2. MarkRange → text label ("0-10", "10-20", ...)

Then tell Power BI to **Sort MarkRange by MarkBucketStart** so order is correct.

Steps

1. In **Data view** (or Report view), choose Marks_Table.

2. **Modeling → New column → paste:**

```
MarkBucketStart =  
VAR v = Marks_Table[Percentage]  
RETURN  
IF( ISBLANK(v), BLANK(),  
IF( v >= 100, 90, FLOOR(v, 10) )  
)
```

Modeling → New column → paste:

```
MarkRange =  
VAR b = Marks_Table[MarkBucketStart]  
RETURN  
IF( ISBLANK(b), BLANK(),  
FORMAT(b, "0") & "-" & FORMAT(b + 10, "0")  
)
```

Notes:

- FLOOR(v,10) returns the lower boundary (e.g., 23 → 20).
- Values ≥ 100 map to 90-100 (so 100 and above sit in final bucket).
- You can change the $IF(v \geq 100, 90, \dots)$ logic if you prefer a 100+ label.

4. **Sort MarkRange by MarkBucketStart:**

- Select MarkRange column.
- In ribbon: **Column tools → Sort by Column → MarkBucketStart.**

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5. Insert → **Stacked column chart** (or column).
 6. Use MarkRange as **Axis** (X-axis) in your column chart and Student Count as **Values**.
 7. In the visual **Format → X-axis** set **Type = Categorical** (so bins show as categories, not continuous).
 8. If labels overlap, go to **X-axis → Labels → Rotation** and set 45 degrees.
-

5) Table — Top 10 Students

- Insert → **Table visual**. Add fields: Rank (DAX – Rank by Total Marks), ADMNO, STUDENT NAME, Class, Total Marks, Percentage.
 - In visual filters set Rank (by Total Marks) is **less than or equal to 10**.
 - In Table select Rank Column and sort it by ascending
-

6) Table — Bottom 10 Students

- Insert → **Table visual**. Add fields: Sr. No (DAX – Asc Rank by Total Marks), ADMNO, STUDENT NAME, Class, Total Marks, Percentage.
 - In visual filters set Sr. No (by Total Marks) is **less than or equal to 10**.
 - In Table select Sr. No Column and sort it by ascending
-

Step 7 — Page-level Slicers: Class & Gender

Objective

Allow viewers to filter student results by Class and Gender — only for the current page (not the entire report).

Step-by-Step Guide

Insert Class Slicer

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1. Go to the Report View (canvas area).
 2. From the Visualizations Pane, click on the Slicer icon (it looks like a funnel).
 3. Drag the field Marks_Table[Class] into the slicer's Field well.
 4. A box will appear on your canvas showing all the class names (e.g., Class 6, 7, 8, etc.).
-

2 Insert Gender Slicer

1. Repeat the same step for Marks_Table[Gender].
 2. You'll now have two slicers — one for Class, one for Gender.
-

3 Set Page-level Effect

- By default, slicers you add on a page only affect visuals on that same page.
 - You don't need to change anything for page-level filters — it's the default behavior.
-

4 Make Them Work Across Pages (Optional)

If you want the same Class & Gender selection to apply on multiple report pages:

1. Go to the View tab in the ribbon.
 2. Choose Sync slicers.
 3. A new Sync Slicers Pane appears on the right.
 4. From there, select your slicers and:
 - Enable the checkbox under "Sync" for pages you want to connect.
 - (Optional) Enable "Visible" if you want the slicer visible on those pages too.
-

5 Format Slicers for User-friendliness

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Select each slicer and use the Format Pane (paint roller icon):

- Change Style → Dropdown or List.
 - Turn Single select ON (if you want users to pick one class/gender at a time) or OFF (for multi-select).
 - Enable the Search box → makes it easy if you have many classes.
 - Adjust font size, alignment, and border for a cleaner look.
-

Tips

- Arrange both slicers horizontally (e.g., “Class” on the left, “Gender” on the right) for a neat dashboard header.
 - Rename slicers (in the Visual Header) as “Select Class” and “Select Gender” for clarity.
 - If using a dark theme, format slicer text colors for readability.
-

Interaction & polish

- Format → Edit interactions (optional) to control which visuals respond to each slicer. (Most standard: all visuals respond.)
 - Tooltips: enable in visuals so hovering shows Percentage, Total Marks.
 - Set visual titles, fonts and colors for readability.
 - Save as Result_Analysis_Template.pbix.
-

Quick checklist for Page 1 (before publishing)

- Marks_Table KPIs measures created & formatted.
- SubjectMarks query exists (unpivoted) and Avg Subject Mark created.
- Donut, Bar, Histogram, Top 10 and Bottom 10 tables added & formatted.
- Page-level slicers for Class & Gender added and tested.
- Interactions tested (select a Class & Gender to see visuals update).

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- Save the report.

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Page 2

Step 1: Create the required DAX measures (all in SubjectMarks)

Measure Name	DAX Formula	Purpose
Present Count	Present Count = CALCULATE(COUNTROWS(SubjectMarks), SubjectMarks[Mark] > 0)	Counts students who wrote the subject
Pass Count	Pass Count = CALCULATE(COUNTROWS(SubjectMarks), SubjectMarks[Mark] >= 33)	Counts students who scored ≥ 33
Average Mark	Average Mark = CALCULATE(AVERAGE(SubjectMarks[Mark]), SubjectMarks[Mark] > 0)	Avg mark excluding absent (0)
Highest Mark	Highest Mark = CALCULATE(MAX(SubjectMarks[Mark]))	Max mark per subject or filter
Lowest Mark	Lowest Mark = CALCULATE(MIN(SubjectMarks[Mark]), SubjectMarks[Mark] > 0)	Lowest non-zero mark

Step 2: Build the Page 2 Table visual

1. Insert → **Table visual**.
2. Add the following fields (in this order):
 - SubjectMarks[Subject] → Rename as **Subject Name**
 - **Student Count**
 - Present Count
 - Pass Count
 - Average Mark
 - Highest Mark

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- Lowest Mark
3. Format numbers (0 decimals for counts, 1–2 for averages).
 4. Sort by Average Mark descending if you want a ranking feel.

Step 3: Calculated Column for subject-wise Histogram

Mark Range — Create as a *Calculated Column*

1. Go to **Data view** (the middle icon on the left).
2. Select your table **SubjectMarks**.
3. In the top ribbon → click **New column** ( not “New measure”).
4. Paste this DAX:

Mark Range =

VAR Score = SubjectMarks[Mark]

VAR Bucket =

SWITCH(

TRUE(),

ISBLANK(Score), BLANK(), -- no mark = blank

Score = 0, BLANK(), -- absent = blank

Score = 100, 90, -- put 100 in 90–100

TRUE(), FLOOR(Score, 10) -- otherwise normal bucket

)

RETURN

IF(

ISBLANK(Bucket),

"Absent",

FORMAT(MAX(0, Bucket), "0") & "-" & FORMAT(MAX(0, Bucket) + 10,

"0")

)

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🔍 Explanation

- If the score is **0** → "Absent"
 - If the score is **100** → bucket starts at **90**
 - Otherwise → use normal FLOOR logic (0–10, 10–20, etc.)
 - Final label built as "90-100" etc.
-

Now:

- Marks 0 → "Absent"
- Marks 1–9 → "0–10"
- Marks 10–19 → "10–20"
- ...
- Marks 90–100 → "90–100"

Question: Now the Mark Range order is 0-10, 10-20, ..., 90-100, Absent.

If you want *Absent* to appear **before all numeric bins**, do this:

1. Create a **helper column** "Mark Range Order" to assign a **sort order**:

🔗 Steps to Create Mark Range Order

1. Go to the **Data view** (table icon on the left pane).
 2. Make sure you're in the **SubjectMarks** table (the same one that has Mark Range).
 3. From the ribbon at the top → **Modeling** → **New Column**.
 4. Paste this DAX formula:
-

Mark Range Order =
SWITCH(
TRUE(),
SubjectMarks[Mark] = 0, -1,

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```
SubjectMarks[Mark] = 100, 90,  
TRUE(), FLOOR(SubjectMarks[Mark], 10)  
)
```

-
5. Press **Enter**.
-

Next Step: Sort the Labels

1. Click the Mark Range column (in Data view).
 2. In the ribbon → **Column tools** → **Sort by Column** → **choose Mark Range Order**.
-

Now Power BI will display the Mark Range bins in **numeric order (-1(Absent), 0–10, 10–20, ..., 90–100)** — not alphabetically.

I want the X-Axis label 0-10, 10-20,... on top

Steps to Add a Manual Title on Top

1. **Go to the “Insert” tab** in the Power BI ribbon.
 2. Click **Text box** .
 3. A text box will appear on your report canvas.
 4. Type your desired title — for example:
"Absent 0-10 10-20"
 5. Move the text box to the **top center** of your visual.
 6. Use the **Format options** to:
 - Increase font size
 - Bold the text
 - Align it center
 - Change color if needed
-

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💡 Pro Tip

You can group the text box with the visual:

- Select both (hold Ctrl and click both the chart and the text box)
- Right-click → **Group**

This way, when you move or resize the visual, the title moves with it — keeping your layout consistent.

Step 3: To get the names of the Topper Name (with Class) of each subject, even if there is tie (multiple names)

```
Topper Name With Class =  
VAR_subj =  
    SELECTEDVALUE(SubjectMarks[Subject])  
  
VAR_topMark =  
    CALCULATE(  
        MAX(SubjectMarks[Mark]),  
        FILTER(  
            ALLSELECTED(SubjectMarks),  
            SubjectMarks[Subject] = _subj  
        )  
    )  
    RETURN  
    IF(  
        ISBLANK(_subj),  
        BLANK(),  
        CONCATENATEX(  
            FILTER(  
                ALLSELECTED(SubjectMarks),  
                SubjectMarks[Subject] = _subj &&  
                SubjectMarks[Mark] = _topMark  
            ),  
            SubjectMarks[Student Name] & " (" & SubjectMarks[Class] & ")")  
    )
```

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```
    ", "  
    SubjectMarks[Student Name],  
    ASC  
)  
)
```

Insert Visual Table or Matrix

Rows > Subject

Values > Topper Name, Highest Marks

Step 4: Insert Clustered Bar Chart

Y-axis > Subject

X-axis > Highest Marks

Tooltips > Toppers Name

Sort the Visual, NOT the Column

In the **Clustered Bar Chart**:

1. Click the **three dots (...)** in the top-right of the chart
2. Choose **Sort by → Subject**
3. Choose **Ascending**

Step 5: Topper Summary

Below are the **exact DAX measures** you need to create the KPI for:

- 1. Topper Name (Based on Total Marks)
- 2. Top Total Marks
- 3. Top Percentage
- 4. His/Her Marks in All Subjects (English, Maths, Science... etc.)

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Assumption:

Your total marks are in **Marks_Table[Total Marks]** and percentage in **Marks_Table[Percentage]**.

1. Top Total Marks

Top Total Marks =

MAX (Marks_Table[Total Marks])

2. Top Percent

Top Percentage =

MAX (Marks_Table[Percentage])

3. Topper Name (Total Marks)

This returns the topper's name based on total marks.

Topper Name =

VAR _maxTotal =

[Top Total Marks]

RETURN

CONCATENATEX(

FILTER(

ALLSELECTED(Marks_Table),

Marks_Table[Total Marks] = _maxTotal

),

Marks_Table[STUDENT NAME],

", "

Marks_Table[STUDENT NAME],

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ASC
)

- ✓ Works even if more than one student has same highest total marks.
 - ✓ Sorts alphabetically.
-

4. HIS / HER Marks in All Subjects

We need one measure per subject.

 These measures automatically return the topper's marks in each subject.

Get the TOPPER's ROLLNO / ADMNO first

You must create this measure once:

Topper ADMNO =

VAR _maxTotal = [Top Total Marks]

RETURN

MINX(

 FILTER(

 ALLSELECTED(Marks_Table),

 Marks_Table[Total Marks] = _maxTotal

),

 Marks_Table[ADMNO]

)

Now Subject-wise Topper Marks Measures

Topper English Mark =

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```
VAR _topADM = [Topper ADMNO]
RETURN
CALCULATE(
    MAX(SubjectMarks[Mark]),
    FILTER(
        ALL(SubjectMarks),
        SubjectMarks[ADMNO] = _topADM
        && SubjectMarks[Subject] = "English"
    )
)
```

Topper Arabic Mark =

```
VAR _adm = [Topper ADMNO]
RETURN
CALCULATE(
    MAX(SubjectMarks[Mark]),
    TREATAS({_adm}, SubjectMarks[ADMNO]),
    SubjectMarks[Subject] = "Arabic"
)
```

Topper Lang II Mark =

```
VAR _adm = [Topper ADMNO]
RETURN
CALCULATE(
    MAX(SubjectMarks[Mark]),
```

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```
TREATAS({_adm}, SubjectMarks[ADMNO]),  
SubjectMarks[Subject] = "Lang II"  
)
```

Topper Maths Mark =

```
VAR _adm = [Topper ADMNO]  
RETURN  
CALCULATE(  
    MAX(SubjectMarks[Mark]),  
    TREATAS({_adm}, SubjectMarks[ADMNO]),  
    SubjectMarks[Subject] = "Maths"  
)
```

Topper Science Mark =

```
VAR _adm = [Topper ADMNO]  
RETURN  
CALCULATE(  
    MAX(SubjectMarks[Mark]),  
    TREATAS({_adm}, SubjectMarks[ADMNO]),  
    SubjectMarks[Subject] = "Science"  
)
```

Topper Social Mark =

```
VAR _adm = [Topper ADMNO]  
RETURN  
CALCULATE(
```

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```
MAX(SubjectMarks[Mark]),  
TREATAS({_adm}, SubjectMarks[ADMNO]),  
SubjectMarks[Subject] = "Social"  
)
```

Insert All the above in Individual KPIs

Remove the Category Label (Format Visual)

Add the Title (Format General)

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Page 3

Step 1 – Table Visual

Following to Add in Columns (All from Marks_Table)

Roll No

ADMNO

Student Name

Arabic

English

Lang II

Maths

Science

Social

Total Marks

Percentage

Class

Result

No. Of Subjects Failed

Slicers

Class (Marks_Table)

Gender (Marks_Table)

Results (Marks_Table)

Subject (SubjectMarks)

Mark Range (SubjectMarrks)

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SUGGESTIONS

Avoid repetition in subject-wise topper measures

Right now you wrote 6 separate measures manually.

You can replace all six with **ONE dynamic measure** by using SELECTEDVALUE.

Topper's Subject Mark =

```
VAR _adm = [Topper ADMNO]
```

```
VAR _sub = SELECTEDVALUE(SubjectMarks[Subject])
```

```
RETURN
```

```
CALCULATE(
```

```
MAX(SubjectMarks[Mark]),
```

```
SubjectMarks[ADMNO] = _adm,
```

```
SubjectMarks[Subject] = _sub
```

```
)
```

Then put Subject on rows in a Multi row cards:

- Rows → Subject
- Values → Topper's Subject Mark
- Settings > Format Visuals > Visuals > Category Labels > Off

No need for 6 KPIs unless you prefer them.