```
Date Manager = CALENDARAUTO()
```

Note that it will be used in any usage of dates except the visual of the DOB late which I will wrote done in red color:

Question 1,2 and 6 of mariem hamdi:

Pie chart:

Legend: city category

Value: Average loan amount by city category

```
Average Loan Amount By City category measure =
 CALCULATE(
     AVERAGE('train'[Loan_Amount]),
     ALLEXCEPT(train,train[City_Category])
)
```

Pie chart:

Legend: employer category

Value: Average loan amount by employer category

```
Average Loan Amount By Employer category measure =
CALCULATE(
     AVERAGE('train'[Loan_Amount]),
     ALLEXCEPT(train,train[Employer_Category1])
)
```

Donut chart

Legend: Gender

Value: Average loan amount by gender

```
Average Loan Amount By Gender measure =
CALCULATE(
     AVERAGE('train'[Loan_Amount]),
     ALLEXCEPT(train,train[Gender])
)
```

Donut chart

Legend: primary bank type

Value: Average loan amount by bank type

```
Average Loan Amount By Bank type measure =
 CALCULATE(
     AVERAGE('train'[Loan_Amount]),
     ALLEXCEPT(train,train[Primary_Bank_Type])
)
```

Donut chart:

Legend: month name (column I got) **so do not use the month from date manager**

Value: count of lead creation date

Pie chart:

Legend: Day name (column I got) **so do not use the month from date manager**

Value : count of lead creation date

Question 7 of mariem hamdi:

Pie chart:

Legend: city category

Value: approval % measure

```
Approval percentage measure =
    DIVIDE(
        COUNTX(
            FILTER(
                train,train[Approved]=1
            ),
            train[ID]
        ),
        Count(train[ID])
    )*100
```

Treemap:

Legend: city category

Value: non approval % measure

```
Non Approval percentage measure =
    DIVIDE(
        COUNTX(
            FILTER(
                train,train[Approved]=0
            ),
            train[ID]
        ),
        Count(train[ID])
    )*100
```

Pie chart:

Legend: Employer category

Value: Approval percentage measure

```
Approval percentage measure =

    DIVIDE(
        COUNTX(
            FILTER(
                train,train[Approved]=1
            ),
            train[ID]
        ),
        Count(train[ID])
    )*100
```

Treemap:

Legend: Employer category

Value: non approval % measure

```
Non Approval percentage measure =
    DIVIDE(
        COUNTX(
            FILTER(
                train,train[Approved]=0
            ),
            train[ID]
        ),
        Count(train[ID])
    )*100
```

Pie chart:

Legend: Source category

Value: Approval percentage measure

```
Approval percentage measure =

    DIVIDE(
        COUNTX(
            FILTER(
                train,train[Approved]=1
            ),
            train[ID]
        ),
        Count(train[ID])
    )*100
```

Treemap:

Legend: Source category

Value: non approval % measure

```
Non Approval percentage measure =
    DIVIDE(
        COUNTX(
            FILTER(
                train,train[Approved]=0
            ),
            train[ID]
        ),
        Count(train[ID])
    )*100
```

Mariem yehia 1st question:

Column chart:

X axis: risk category based on EMI and loan amount (this is a calculated column)

Y axis: average of monthly income

```
Risk Category based on EMI and Loan Amount =
IF(
    (train[Monthly_Income]*.5)<(train[EMI]+train[Loan_Amount]*.1),"High-Risk",
    "Low-Risk"
    )
```

Column chart:

X axis: risk category based on EMI and loan amount (this is a calculated column)

Y axis: Average of EMI

```
Risk Category based on EMI and Loan Amount =
IF(
    (train[Monthly_Income]*.5)<(train[EMI]+train[Loan_Amount]*.1),"High-Risk",
    "Low-Risk"
    )
```

Card:

Debt to income ratio measure:

```
DTI ratio measure =
 Divide([EMI measure for Debt to Income Ratio measure], [Monthly Income measure for DTI ratio measure])

 So you should make these two measures in the first place.

EMI measure for Debt to Income Ratio measure = Sum(train[EMI])
Monthly Income measure for DTI ratio measure = Sum(train[Monthly_Income])
```

Question 3 of mariem yehia:

Note that there is 1020 client whom loan was approved

Card:

Top month of loan approval

```
top month for loan approvals measure = MINX(
    TOPN(
        1,
        All(train),
        [Loan approval by month meaure],
        DESC
    ),
    train[Month Name]
)
```

Note: The most top month will be august

Column chart:

X axis : Month (from the date manager)

Y axis: loan approval measure

```
Loan approval by month meaure = CALCULATE(
    Count(train[ID]),
    train[Approved]=1
)
```

This according to the DOB of the clients (the month here is based on the month the client was born)

Column chart:

X axis : Month (from the lead creation date)

Y axis: `Loan approval by month meaure`

```
Loan approval by month meaure = CALCULATE(

    Count(train[ID]),
    train[Approved]=1
)
```

This according to the creation date of the client loan (the month here is based on the month the bank created the loan for the client whether the creation date is the application date or what so ever)

Make it interactive so when we choose a birth month, it reflects on the other column chart.

Question 4 of mariem yehia:

Card: `Top Source Category measure`

```
Top Source Category measure = MINX(
TOPN(
    1,
    all(train),
    [Approval percentage measure],
    DESC),
    train[Source_Category])

it will be source B
```

Question 5 of mariem yehia is the same as question 7 of mairem hamdi

Further analysis:

Decomposition tree idea:

```
Analyze : average interest rate measure

Explain by: source category
```

```
average interest rate measure = AVERAGE(train[Interest_Rate])
```

Decomposition tree idea:

```
Analyze : average interest rate measure (will use the same previous measure)

Explain by: Gender
```

Notes:

Note 1:

Multi card idea (as general description) contain the following measures:

```
total clients number

average monthly income

average loan amount

average interest rate
```

Note2:

Don't forget the card idea I suggested (sent you screenshot yesterday via email). A large card with the following measure

```
Total Count of Loans measure = COUNT(train[ID])
```

And on it two small card indicating count of males and females (how many of each applied for loans). With the following measures one for each small card:

```
male gender count measure = CALCULATE(COUNT(train[Gender]),train[Gender]="Male")


female gender count measure = CALCULATE(COUNT(train[Gender]),train[Gender]="Female")
```

Note 3:

Same idea can be applied on interest rate and source category as follows:

Big card measure will be

```
average interest rate measure = AVERAGE(train[Interest_Rate])


small cards measures will be

average interest rate for G source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="G")


average interest rate for A source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="A")


average interest rate for B source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="B")

average interest rate for C source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="C")


average interest rate for D source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="D")
average interest rate for E source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="E")

average interest rate for F source measure =
CALCULATE(AVERAGE(train[Interest_Rate]),train[Source_Category]="F")
```