**BANK LOAN REPORT QUERY DOCUMENT**

**Dashboard 1: Summary. Problem Statement**

**KPI’s:**

* 1. **Total Loan Applications**

**select count(id) as Total\_applications from bank\_loan\_data;**

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* 1. **MTD Loan Applications**

**select count(id) as MTD from bank\_loan\_data where**

**extract(month from issue\_date) = (select max(extract(month from issue\_date)) from bank\_loan\_data)**

**and extract(year from issue\_date) = (select max(extract(year from issue\_date)) from bank\_loan\_data);**

****

* 1. **Track changes month over month**

**with monthly\_application\_table as(**

**select**

**extract(year from issue\_date) as year, extract(month from issue\_date) as mon, count(id) as total\_applications**

**from bank\_loan\_data**

**group by extract(year from issue\_date), extract(month from issue\_date)**

**order by extract(year from issue\_date), extract(month from issue\_date))**

**select**

**year,**

**mon,**

**100\*((total\_applications - (lag(total\_applications) over()))/(lag(total\_applications) over()))**

**as percent\_difference from monthly\_application\_table;**

|  |  |  |
| --- | --- | --- |
| **year** | **mon** | **percent\_difference** |
| 2021 | 1 | NULL |
| 2021 | 2 | -2.2727 |
| 2021 | 3 | 15.2699 |
| 2021 | 4 | 4.8725 |
| 2021 | 5 | 5.6624 |
| 2021 | 6 | 9.3782 |
| 2021 | 7 | 5.7161 |
| 2021 | 8 | 2.2282 |
| 2021 | 9 | 2.7608 |
| 2021 | 10 | 7.3529 |
| 2021 | 11 | 6.2961 |
| 2021 | 12 | 6.9145 |

* 1. **Total Funded Amount**

**select sum(loan\_amount) as total\_funded\_amount from bank\_loan\_data;**



* 1. **MTD Funded Amount**

**select sum(loan\_amount) as MTD\_funded\_amount from bank\_loan\_data**

**where extract(year from issue\_date)= (select extract(year from max(issue\_date)) from bank\_loan\_data) and**

**extract(month from issue\_date)= (select extract(month from max(issue\_date)) from bank\_loan\_data);**

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* 1. **Track changes of funded amount month over month**

**with monthly\_funded\_amt\_data as(**

**select extract(year from issue\_date) as year,**

**extract(month from issue\_date) as mon,**

**sum(loan\_amount) as total\_funded\_amount**

**from bank\_loan\_data**

**group by extract(year from issue\_date),**

**extract(month from issue\_date)**

**order by extract(year from issue\_date),**

**extract(month from issue\_date))**

**select year,**

**mon,**

**100\*((total\_funded\_amount - (lag(total\_funded\_amount) over()))/(lag(total\_funded\_amount) over())) as percent\_difference**

**from monthly\_funded\_amt\_data;**

|  |  |  |
| --- | --- | --- |
| year | mon | percent\_difference |
| 2021 | 1 | NULL |
| 2021 | 2 | -1.5334 |
| 2021 | 3 | 17.1531 |
| 2021 | 4 | 3.2037 |
| 2021 | 5 | 6.5017 |
| 2021 | 6 | 7.6347 |
| 2021 | 7 | 4.8371 |
| 2021 | 8 | 6.5218 |
| 2021 | 9 | 7.2298 |
| 2021 | 10 | 9.7441 |
| 2021 | 11 | 6.3729 |
| 2021 | 12 | 13.0387 |

* 1. **Total Amount Received**

**select sum(total\_payment) as total\_amount\_received from bank\_loan\_data;**

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* 1. **MTD Amount Received**

**select sum(total\_payment) as MTD\_amount\_received from bank\_loan\_data**

**where extract(year from issue\_date)= (select extract(year from max(issue\_date)) from bank\_loan\_data) and**

**extract(month from issue\_date)= (select extract(month from max(issue\_date)) from bank\_loan\_data);**

* 1. **Track changes of amount received month over month**

**with monthly\_amt\_received\_data as(**

**select extract(year from issue\_date) as year,**

**extract(month from issue\_date) as mon,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by extract(year from issue\_date),**

**extract(month from issue\_date)**

**order by extract(year from issue\_date),**

**extract(month from issue\_date))**

**select year,**

**mon,**

**100\*((total\_amount\_received - (lag(total\_amount\_received) over()))/(lag(total\_amount\_received) over()))**

**as percent\_difference**

**from monthly\_amt\_received\_data;**

|  |  |  |
| --- | --- | --- |
| **year** | **mon** | **percent\_difference** |
| 2021 | 1 | NULL |
| 2021 | 2 | 0.5037 |
| 2021 | 3 | 16.4034 |
| 2021 | 4 | 0.7164 |
| 2021 | 5 | 3.862 |
| 2021 | 6 | 7.1525 |
| 2021 | 7 | 7.3627 |
| 2021 | 8 | 9.9286 |
| 2021 | 9 | 3.0498 |
| 2021 | 10 | 12.3127 |
| 2021 | 11 | 1.4827 |
| 2021 | 12 | 15.8429 |

* 1. **Average interest rates**

**select avg(int\_rate) as average\_interest\_rate from bank\_loan\_data;**

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* 1. **MTD Average interest rates**

**select avg(int\_rate) as MTD\_avg\_int\_rate from bank\_loan\_data**

**where extract(year from issue\_date)= (select extract(year from max(issue\_date)) from bank\_loan\_data) and**

**extract(month from issue\_date)= (select extract(month from max(issue\_date)) from bank\_loan\_data); **

* 1. **Track average interest rate changes received month over month**

**with monthly\_avg\_int\_rates\_data as(**

**select extract(year from issue\_date) as year,**

**extract(month from issue\_date) as mon,**

**avg(int\_rate) as avg\_interest\_rates**

**from bank\_loan\_data**

**group by extract(year from issue\_date),**

**extract(month from issue\_date)**

**order by extract(year from issue\_date),**

**extract(month from issue\_date))**

**select year,**

**mon,**

**100\*((avg\_interest\_rates - (lag(avg\_interest\_rates) over()))/(lag(avg\_interest\_rates) over()))**

**as percent\_difference**

**from monthly\_avg\_int\_rates\_data;**

|  |  |  |
| --- | --- | --- |
| **year** | **mon** | **percent\_difference** |
| 2021 | 1 | NULL |
| 2021 | 2 | 2.266167 |
| 2021 | 3 | 1.165866 |
| 2021 | 4 | -0.98988 |
| 2021 | 5 | 4.402446 |
| 2021 | 6 | 0.134188 |
| 2021 | 7 | -0.30149 |
| 2021 | 8 | 0.514808 |
| 2021 | 9 | -2.41461 |
| 2021 | 10 | 0.174039 |
| 2021 | 11 | -0.68533 |
| 2021 | 12 | 3.469546 |

* 1. **Average dti**

**select avg(dti) as average\_dti from bank\_loan\_data;**



* 1. **MTD Average dti**

**select avg(dti) as MTD\_avg\_dti from bank\_loan\_data**

**where extract(year from issue\_date)= (select extract(year from max(issue\_date)) from bank\_loan\_data) and**

**extract(month from issue\_date)= (select extract(month from max(issue\_date)) from bank\_loan\_data);**

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* 1. **Track average dti changes received month over month**

**with monthly\_avg\_dti\_data as(**

**select extract(year from issue\_date) as year,**

**extract(month from issue\_date) as mon,**

**avg(dti) as avg\_dti**

**from bank\_loan\_data**

**group by extract(year from issue\_date),**

**extract(month from issue\_date)**

**order by extract(year from issue\_date),**

**extract(month from issue\_date))**

**select year,**

**mon,**

**100\*((avg\_dti - (lag(avg\_dti) over()))/(lag(avg\_dti) over()))**

**as percent\_difference**

**from monthly\_avg\_dti\_data;**

|  |  |  |
| --- | --- | --- |
| **year** | **mon** | **percent\_difference** |
| 2021 | 1 | NULL |
| 2021 | 2 | 3.651107 |
| 2021 | 3 | -1.44462 |
| 2021 | 4 | 0.028348 |
| 2021 | 5 | 0.865271 |
| 2021 | 6 | -0.6747 |
| 2021 | 7 | 0.385346 |
| 2021 | 8 | 0.439388 |
| 2021 | 9 | -0.41476 |
| 2021 | 10 | 0.87633 |
| 2021 | 11 | -0.8323 |
| 2021 | 12 | 2.727291 |

**6.1 Good Loan Application**

**select**

**case**

**when loan\_status='Fully Paid' then 'Good Loan'**

**when loan\_status='Current' then 'Good Loan'**

**when loan\_status='Charged Off' then 'Bad Loan'**

**else 'Bad Loan' end as updated\_loan\_status,**

**count(id)**

**from bank\_loan\_data**

**group by updated\_loan\_status;**

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**6.2 Good and Bad Loan Application Percentage**

**SELECT**

**CASE**

**WHEN loan\_status = 'Fully Paid' THEN 'Good Loan'**

**WHEN loan\_status = 'Current' THEN 'Good Loan'**

**WHEN loan\_status = 'Charged Off' THEN 'Bad Loan'**

**ELSE 'Bad Loan'**

**END AS updated\_loan\_status,**

**COUNT(id) \* 100.0 / SUM(COUNT(id)) OVER () AS percent\_applications**

**FROM bank\_loan\_data**

**GROUP BY updated\_loan\_status;**

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**6.3 Good and Bad Loan Funded amount**

**select**

**case**

**when loan\_status='Fully Paid' then 'Good Loan'**

**when loan\_status='Current' then 'Good Loan'**

**when loan\_status='Charged Off' then 'Bad Loan'**

**else 'Bad Loan' end as updated\_loan\_status,**

**sum(loan\_amount)**

**from bank\_loan\_data**

**group by updated\_loan\_status;**

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**6.4 Good and Bad Loan Funded amount Percentage**

**SELECT**

**CASE**

**WHEN loan\_status = 'Fully Paid' THEN 'Good Loan'**

**WHEN loan\_status = 'Current' THEN 'Good Loan'**

**WHEN loan\_status = 'Charged Off' THEN 'Bad Loan'**

**ELSE 'Bad Loan'**

**END AS updated\_loan\_status,**

**sum(loan\_amount) \* 100.0 / SUM(sum(loan\_amount)) OVER () AS percent\_funded\_amount**

**FROM bank\_loan\_data**

**GROUP BY updated\_loan\_status;**

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**6.5 Good and Bad Loan total received amount**

**select**

**case**

**when loan\_status='Fully Paid' then 'Good Loan'**

**when loan\_status='Current' then 'Good Loan'**

**when loan\_status='Charged Off' then 'Bad Loan'**

**else 'Bad Loan' end as updated\_loan\_status,**

**sum(total\_payment)**

**from bank\_loan\_data**

**group by updated\_loan\_status;**

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**6.6 Good and Bad Loan total received amount Percentage**

**SELECT**

**CASE**

**WHEN loan\_status = 'Fully Paid' THEN 'Good Loan'**

**WHEN loan\_status = 'Current' THEN 'Good Loan'**

**WHEN loan\_status = 'Charged Off' THEN 'Bad Loan'**

**ELSE 'Bad Loan'**

**END AS updated\_loan\_status,**

**sum(total\_payment) \* 100.0 / SUM(sum(total\_payment)) OVER () AS percent\_funded\_amount**

**FROM bank\_loan\_data**

**GROUP BY updated\_loan\_status;**

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**7.1 Loan Status Grid View**

**with aggregated\_data as(**

**select loan\_status,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received,**

**avg(int\_rate) as average\_interest\_rate,**

**avg(dti) as average\_dti**

**from bank\_loan\_data**

**group by loan\_status),**

**aggregated\_MTD\_data as(**

**select loan\_status,**

**sum(loan\_amount) as MTD\_funded\_amount,**

**sum(total\_payment) as MTD\_amount\_received**

**from bank\_loan\_data**

**where extract(month from issue\_date)=(select extract(month from max(issue\_date)) from bank\_loan\_data)**

**and extract(year from issue\_date)=(select extract(year from max(issue\_date)) from bank\_loan\_data)**

**group by loan\_status)**

**select a.loan\_status,**

**a.total\_loan\_application,**

**a.total\_funded\_amount,**

**a.total\_amount\_received,**

**b.MTD\_funded\_amount,**

**b.MTD\_amount\_received,**

**a.average\_interest\_rate,**

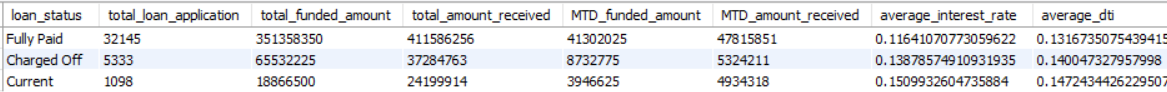
**a.average\_dti**

**from aggregated\_data a**

**inner join**

**aggregated\_MTD\_data b**

**on a.loan\_status=b.loan\_status;**



**Dashboard 2: Overview. Problem Statement**

**Metrics: Total Loan Applications, Total Funded Amount, Total Amount Received**

**1. Monthly Trends by Issue Date**

**select**

**extract(year from issue\_date) as year,**

**extract(month from issue\_date) as mon,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by extract(year from issue\_date),**

**extract(month from issue\_date)**

**order by extract(year from issue\_date),**

**extract(month from issue\_date);**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **year** | **mon** | **total\_loan\_application** | **total\_funded\_amount** | **total\_amount\_received** |
| 2021 | 1 | 2332 | 25031650 | 27578836 |
| 2021 | 2 | 2279 | 24647825 | 27717745 |
| 2021 | 3 | 2627 | 28875700 | 32264400 |
| 2021 | 4 | 2755 | 29800800 | 32495533 |
| 2021 | 5 | 2911 | 31738350 | 33750523 |
| 2021 | 6 | 3184 | 34161475 | 36164533 |
| 2021 | 7 | 3366 | 35813900 | 38827220 |
| 2021 | 8 | 3441 | 38149600 | 42682218 |
| 2021 | 9 | 3536 | 40907725 | 43983948 |
| 2021 | 10 | 3796 | 44893800 | 49399567 |
| 2021 | 11 | 4035 | 47754825 | 50132030 |
| 2021 | 12 | 4314 | 53981425 | 58074380 |

**2. Regional Analysis by State**

**select**

**address\_state as state,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by address\_state**

**order by sum(loan\_amount) desc;**

|  |  |  |  |
| --- | --- | --- | --- |
| **home\_ownership** | **total\_loan\_application** | **total\_funded\_amount** | **total\_amount\_received** |
| MORTGAGE | 17198 | 2.19E+08 | 2.38E+08 |
| RENT | 18439 | 1.86E+08 | 2.02E+08 |
| OWN | 2838 | 29597675 | 31729129 |
| OTHER | 98 | 1044975 | 1025257 |
| NONE | 3 | 16800 | 19053 |

**3. Loan Term Analysis**

**select**

**term,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by term;**

|  |  |  |  |
| --- | --- | --- | --- |
| **term** | **total\_loan\_application** | **total\_funded\_amount** | **total\_amount\_received** |
| 60 months | 10339 | 162715850 | 178361475 |
| 36 months | 28237 | 273041225 | 294709458 |

**4. Employee Length Analysis**

**select**

**emp\_length as employee\_length,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by emp\_length**

**order by sum(loan\_amount) desc, count(id) desc, sum(total\_payment) desc;**

|  |  |  |  |
| --- | --- | --- | --- |
| **employee\_length** | **total\_loan\_application** | **total\_funded\_amount** | **total\_amount\_received** |
| 10+ years | 8870 | 116115950 | 125871616 |
| 2 years | 4382 | 44967975 | 49206961 |
| < 1 year | 4575 | 44210625 | 47545011 |
| 3 years | 4088 | 43937850 | 47551832 |
| 4 years | 3428 | 37600375 | 40964850 |
| 5 years | 3273 | 36973625 | 40397571 |
| 1 year | 3229 | 32883125 | 35498348 |
| 6 years | 2228 | 25612650 | 27908658 |
| 7 years | 1772 | 20811725 | 22584136 |
| 8 years | 1476 | 17558950 | 19025777 |
| 9 years | 1255 | 15084225 | 16516173 |

**5. Loan Purpose Breakdown**

**select**

**purpose as loan\_purpose,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by purpose**

**order by sum(loan\_amount) desc, count(id) desc, sum(total\_payment) desc;**

|  |  |  |  |
| --- | --- | --- | --- |
| **loan\_purpose** | **total\_loan\_application** | **total\_funded\_amount** | **total\_amount\_received** |
| Debt consolidation | 18214 | 232459675 | 253801871 |
| credit card | 4998 | 58885175 | 65214084 |
| home improvement | 2876 | 33350775 | 36380930 |
| other | 3824 | 31155750 | 33289676 |
| small business | 1776 | 24123100 | 23814817 |
| major purchase | 2110 | 17251600 | 18676927 |
| car | 1497 | 10223575 | 11324914 |
| wedding | 928 | 9225800 | 10266856 |
| medical | 667 | 5533225 | 5851372 |
| house | 366 | 4824925 | 5185538 |
| moving | 559 | 3748125 | 3999899 |
| educational | 315 | 2161650 | 2248380 |
| vacation | 352 | 1967950 | 2116738 |
| renewable\_energy | 94 | 845750 | 898931 |

**6. Home Ownership Analysis**

**select**

**home\_ownership,**

**count(id) as total\_loan\_application,**

**sum(loan\_amount) as total\_funded\_amount,**

**sum(total\_payment) as total\_amount\_received**

**from bank\_loan\_data**

**group by home\_ownership**

**order by sum(loan\_amount) desc, count(id) desc, sum(total\_payment) desc;**

|  |  |  |  |
| --- | --- | --- | --- |
| **home\_ownership** | **total\_loan\_application** | **total\_funded\_amount** | **total\_amount\_received** |
| MORTGAGE | 17198 | 219329150 | 238474438 |
| RENT | 18439 | 185768475 | 201823056 |
| OWN | 2838 | 29597675 | 31729129 |
| OTHER | 98 | 1044975 | 1025257 |
| NONE | 3 | 16800 | 19053 |