**Business Questions**

1. What is the distribution of loan durations (in years and months) across the portfolio?

```sql
SELECT
  duration_years,
  duration_months,
  COUNT(*) AS Loan_Count
FROM
  `del16-incubation-lab-project.sprint4_week1.loan`
GROUP BY
  duration_years,
  duration_months
```

| Row | duration_years | duration_months | Loan_Count |
|---|---|---|---|
| 1 | 10 | 120 | 6 |
| 2 | 15 | 180 | 255 |
| 3 | 20 | 240 | 48 |
| 4 | 30 | 360 | 1369 |

2. How does the interest rate vary based on the purpose of the loan?

```sql
SELECT
  purpose,
  ROUND(AVG(interest_rate_percent), 2) AS avg_interest_rate
FROM
  `del16-incubation-lab-project.sprint4_week1.loan`
GROUP BY
  purpose
```

| Row | purpose | avg_interest_rate |
|---|---|---|
| 1 | boat | 3.62 |
| 2 | plane | 3.6 |
| 3 | home | 3.83 |
| 4 | commerical property | 3.81 |
| 5 | investment property | 3.79 |

3. What is the average total payments made by borrowers in different ZIP codes?

```sql
SELECT
  ZIP_CODE,
  ROUND(AVG(total_past_payments), 2) AS avg_payments
FROM
  `del16-incubation-lab-project.sprint4_week1.asset` AS asset
JOIN
  `del16-incubation-lab-project.sprint4_week1.fact` AS fact
ON
  asset.UniqueID = fact.UniqueID
GROUP BY
  ZIP_CODE
ORDER BY
  avg_payments desc
```

| Row | ZIP_CODE | avg_payments |
|---|---|---|
| 1 | 10115 | 70.5 |
| 2 | 10278 | 67.2 |
| 3 | 10004 | 61.25 |
| 4 | 10031 | 58.27 |
| 5 | 10023 | 58.0 |
| 6 | 10119 | 57.27 |
| 7 | 10199 | 56.75 |
| 8 | 10060 | 56.5 |
| 9 | 10045 | 56.21 |
| 10 | 10259 | 56.07 |
| 11 | 10002 | 55.6 |
| 12 | 10025 | 55.5 |

4. How does the employment length of borrowers correlate with the funded amount of loans?

```sql
SELECT
  customer.employment_length,
  ROUND(AVG(loan.funded_amount), 2) AS avg_funded_amount
FROM
  `del16-incubation-lab-project.sprint4_week1.customer` AS customer
JOIN
  `del16-incubation-lab-project.sprint4_week1.fact` AS fact
ON
  customer.hashed_social = fact.hashed_social
JOIN
  `del16-incubation-lab-project.sprint4_week1.loan` AS loan
ON
  fact.loan_id = loan.loan_id
GROUP BY
  customer.employment_length
ORDER BY
  customer.employment_length desc
```

| Row | employment_length | avg_funded_amount |
|---|---|---|
| 1 | 18 | 1788367.82 |
| 2 | 17 | 1644923.53 |
| 3 | 16 | 1770303.8 |
| 4 | 15 | 1578262.2 |
| 5 | 14 | 1885617.98 |
| 6 | 13 | 1591823.23 |
| 7 | 12 | 1874767.33 |
| 8 | 11 | 1689424.24 |
| 9 | 10 | 3013468.47 |
| 10 | 9 | 1748430.38 |
| 11 | 8 | 2005076.09 |
| 12 | 7 | 1767484.85 |

5. What is the distribution of property values for loans funded in different Zip codes?

```sql
SELECT
  ZIP_CODE,
  APPROX_QUANTILES(property_value, 2)[OFFSET(1)] AS median_property_value
FROM
  `del16-incubation-lab-project.sprint4_week1.asset`
GROUP BY
  ZIP_CODE
ORDER BY
  median_property_value desc
```

| Row | ZIP_CODE | median_property_val |
|---|---|---|
| 1 | 10162 | 2259300 |
| 2 | 10260 | 2169900 |
| 3 | 10030 | 1987650 |
| 4 | 10090 | 1970100 |
| 5 | 10112 | 1967200 |
| 6 | 10105 | 1949350 |
| 7 | 10107 | 1942500 |
| 8 | 10113 | 1932850 |
| 9 | 10104 | 1931450 |
| 10 | 10178 | 1904900 |
| 11 | 10060 | 1891350 |
| 12 | 10018 | 1856450 |

6. How many loans were funded per year, and what is the trend in loan volume over time?

```sql
SELECT
  EXTRACT(YEAR FROM funded_date) AS year,
  COUNT(*) AS loan_count
FROM
  `del16-incubation-lab-project.sprint4_week1.loan`
GROUP BY
  year
ORDER BY
  year
```

| Row | year | loan_count |
|---|---|---|
| 1 | 2012 | 216 |
| 2 | 2013 | 207 |
| 3 | 2014 | 214 |
| 4 | 2015 | 193 |
| 5 | 2016 | 205 |
| 6 | 2017 | 194 |
| 7 | 2018 | 228 |
| 8 | 2019 | 221 |

7. What is the average gross square feet of properties funded in each building class category?

```sql
SELECT
  BUILDING_CLASS_CATEGORY,
  ROUND(AVG(GROSS_SQUARE_FEET), 2) AS avg_square_feet
FROM
  `del16-incubation-lab-project.sprint4_week1.asset`
GROUP BY
  BUILDING_CLASS_CATEGORY
ORDER BY
  BUILDING_CLASS_CATEGORY
```

| Row | BUILDING_CLASS_CATEGORY | avg_square_feet |
|---|---|---|
| 1 | 01 ONE FAMILY DWELLINGS ... | 3018.7 |
| 2 | 02 TWO FAMILY DWELLINGS ... | 2527.0 |
| 3 | 03 THREE FAMILY DWELLINGS ... | 3300.74 |
| 4 | 04 TAX CLASS 1 CONDOS ... | 0.0 |
| 5 | 07 RENTALS - WALKUP APART... | 5835.45 |
| 6 | 08 RENTALS - ELEVATOR APAR... | 22379.33 |
| 7 | 09 COOPS - WALKUP APARTM... | 8800.0 |
| 8 | 11A CONDO-RENTALS ... | 25360.5 |
| 9 | 12 CONDOS - WALKUP APART... | 0.0 |
| 10 | 13 CONDOS - ELEVATOR APAR... | 0.0 |
| 11 | 14 RENTALS - 4-10 UNIT ... | 4852.82 |
| 12 | 15 CONDOS - 2-10 UNIT RESID... | 0.0 |

8. How does the tax class at time of sale impact the loan balance and total past payments?

```sql
SELECT
  asset.TAX_CLASS_AT_TIME_OF_SALE,
  ROUND(AVG(fact.loan_balance), 2) AS avg_loan_balance,
  ROUND(AVG(total_past_payments), 2) AS avg_total_payments
FROM
  `del16-incubation-lab-project.sprint4_week1.asset` AS asset
JOIN
  `del16-incubation-lab-project.sprint4_week1.fact` AS fact
ON
  asset.UniqueID = fact.UniqueID
GROUP BY
  asset.TAX_CLASS_AT_TIME_OF_SALE
```

| Row | TAX_CLASS_AT_TIM | avg_loan_balance | avg_total_payments |
|---|---|---|---|
| 1 | 1 | 1057478.44 | 46.31 |
| 2 | 2 | 1433852.39 | 47.13 |
| 3 | 4 | 2683411.32 | 51.05 |