```
show databases;
create database project1;
use project1;
show tables;
select * from data;

# mean
SELECT AVG(Air) AS mean_Air
FROM data;

SELECT AVG(Process) AS mean_Process
FROM data;

SELECT AVG(Rotational) AS mean_Rotational
FROM data;

SELECT AVG(Torque) AS mean_Torque
FROM data;

# median
SELECT Air AS median_Airtempture
FROM (
    SELECT Air, ROW_NUMBER() OVER (ORDER BY Air) AS row_num,
           COUNT(*) OVER () AS total_count
    FROM data
) AS subquery
WHERE row_num = (total_count + 1) / 2 OR row_num = (total_count + 2) / 2;

SELECT Process AS median_processtempture
FROM (
    SELECT Process, ROW_NUMBER() OVER (ORDER BY Process) AS row_num,
           COUNT(*) OVER () AS total_count
    FROM data
) AS subquery
WHERE row_num = (total_count + 1) / 2 OR row_num = (total_count + 2) / 2;


SELECT Torque AS median_torque
FROM (
    SELECT Torque, ROW_NUMBER() OVER (ORDER BY Torque) AS row_num,
           COUNT(*) OVER () AS total_count
    FROM data
) AS subquery
WHERE row_num = (total_count + 1) / 2 OR row_num = (total_count + 2) / 2;


# mode
 SELECT Air AS mode_Airtempture
FROM (
    SELECT Air, COUNT(*) AS frequency
    FROM data
    GROUP BY Air
    ORDER BY frequency DESC
    LIMIT 1
```

```
) AS subquery;

SELECT Process AS mode_ProcessTempture
FROM (
    SELECT Process, COUNT(*) AS frequency
    FROM data
    GROUP BY Process
    ORDER BY frequency DESC
    LIMIT 1
) AS subquery;

SELECT Rotational AS mode_RotationalSpeed
FROM (
    SELECT Rotational, COUNT(*) AS frequency
    FROM data
    GROUP BY Rotational
    ORDER BY frequency DESC
    LIMIT 1
) AS subquery;

SELECT Torque AS mode_torque
FROM (
    SELECT Torque, COUNT(*) AS frequency
    FROM data
    GROUP BY Torque
    ORDER BY frequency DESC
    LIMIT 1
) AS subquery;

# Second Moment Business Decision/Measures of Dispersion
# Variance

SELECT VARIANCE(Air) AS Airtempture_variance
FROM data;

SELECT VARIANCE(Process) AS processtempture_variance
FROM data;

SELECT VARIANCE(Rotational) AS Rotationalspeed_variance
FROM data;

SELECT VARIANCE(Torque) AS Torque_variance
FROM data;

# Standard Deviation
SELECT STDDEV(Air) AS Air_stddev
FROM data;

SELECT STDDEV(Process) AS Process_stddev
FROM data;

SELECT STDDEV(Torque) AS Torque_stddev
FROM data;
```

```
SELECT STDDEV(Rotational) AS Rotational_stddev
FROM data;

# Range
SELECT MAX(Air) - MIN(Air) AS Air_range
FROM data;

SELECT MAX(Process) - MIN(Process) AS Process_range
FROM data;

SELECT MAX(Torque) - MIN(Torque) AS Torque_range
FROM data;

SELECT MAX(Rotational) - MIN(Rotational) AS Rotational_range
FROM data;

# Third and Fourth Moment Business Decision
-- skewness and kurkosis

SELECT
    (
        SUM(POWER(Air - (SELECT AVG(Air) FROM data), 3)) /
        (COUNT(*) * POWER((SELECT STDDEV(Air) FROM data), 3))
    ) AS skewness,
    (
        (SUM(POWER(Air - (SELECT AVG(Air) FROM data), 4)) /
        (COUNT(*) * POWER((SELECT STDDEV(Air) FROM data), 4))) - 3
    ) AS kurtosis
FROM data;


SELECT
    (
        SUM(POWER(Process - (SELECT AVG(Process) FROM data), 3)) /
        (COUNT(*) * POWER((SELECT STDDEV(Process) FROM data), 3))
    ) AS skewness,
    (
        (SUM(POWER(Process - (SELECT AVG(Process) FROM data), 4)) /
        (COUNT(*) * POWER((SELECT STDDEV(Process) FROM data), 4))) - 3
    ) AS kurtosis
FROM data;


SELECT
    (
        SUM(POWER(Rotational - (SELECT AVG(Rotational) FROM data), 3)) /
        (COUNT(*) * POWER((SELECT STDDEV(Rotational) FROM data), 3))
    ) AS skewness,
    (
        (SUM(POWER(Rotational - (SELECT AVG(Rotational) FROM data), 4)) /
        (COUNT(*) * POWER((SELECT STDDEV(Rotational) FROM data), 4))) - 3
    ) AS kurtosis
FROM data;
```

```
SELECT
    (
        SUM(POWER(Torque - (SELECT AVG(Torque) FROM data), 3)) /
        (COUNT(*) * POWER((SELECT STDDEV(Torque) FROM data), 3))
    ) AS skewness,
    (
        (SUM(POWER(Torque - (SELECT AVG(Torque) FROM data), 4)) /
        (COUNT(*) * POWER((SELECT STDDEV(Torque) FROM data), 4))) - 3
    ) AS kurtosis
FROM data;


drop database project1;
```