

```
1 function calculateAverageRent(inputLatitude, inputLongitude, maxDistance, yearBuiltLower, yearBuiltUpper, unitsLower, unitsUpper) {
2   var projectId = 'rent-automation-project'; // Replace with your Google Cloud project ID
3   var sqlQuery = `
4     SELECT AVG(CAST('Studio Asking Rent-Unit' AS FLOAT64)) as averageRent
5     FROM rental_properties.properties_data
6     WHERE ST_DISTANCE(ST_GEOGPOINT(CAST(Longitude AS FLOAT64), CAST(Latitude AS FLOAT64)), ST_GEOGPOINT(${inputLongitude}, ${inputLatitude})) <= ${maxDistance * 1609.
7       34}
8     AND CAST('Year Built' AS INT64) >= ${yearBuiltLower}
9     AND CAST('Year Built' AS INT64) <= ${yearBuiltUpper}
10    AND CAST('Number of Units' AS INT64) >= ${unitsLower}
11    AND CAST('Number of Units' AS INT64) <= ${unitsUpper}
12  `;
13  var queryRequest = {
14    query: sqlQuery,
15    useLegacySql: false
16  };
17  var queryResults = BigQuery.Jobs.query(queryRequest, projectId);
18  var rows = queryResults.rows;
19
20  return rows.length > 0 ? parseFloat(rows[0].f[0].v) : 0;
}
```

```

1 function calculatePropertyCount(inputLatitude, inputLongitude, maxDistance, yearBuiltLower, yearBuiltUpper, unitsLower, unitsUpper) {
2     var ss = SpreadsheetApp.getActiveSpreadsheet();
3     var databaseSheet = ss.getSheetByName("Database");
4
5     // Get data from 'Database' sheet
6     var databaseData = databaseSheet.getDataRange().getValues();
7
8     var propertyCount = 0; // Counter for properties that meet all criteria
9
10    // Calculate distances and filter by maxDistance, Year Built, and Number of Units
11    for (var i = 1; i < databaseData.length; i++) {
12        var row = databaseData[i];
13        var latitude = row[7]; // Assuming latitude is in column H
14        var longitude = row[8]; // Assuming longitude is in column I
15        var yearBuilt = row[1]; // Assuming year built is in column B
16        var numberOfUnits = row[9]; // Assuming number of units is in column J
17
18        var dist = calculateHaversineDistance(inputLatitude, inputLongitude, latitude, longitude);
19
20        // Check distance, year built, and number of units criteria
21        if (dist <= maxDistance &&
22            yearBuilt >= yearBuiltLower && yearBuilt <= yearBuiltUpper &&
23            numberOfUnits >= unitsLower && numberOfUnits <= unitsUpper) {
24            propertyCount++;
25        }
26    }
27
28    // Return the count of properties
29    return propertyCount;
30 }
31
32 function calculateHaversineDistance(lat1, lon1, lat2, lon2) {
33     var R = 6371; // Radius of the earth in km
34     var dLat = degreesToRadians(lat2 - lat1);
35     var dLon = degreesToRadians(lon2 - lon1);
36     var a =
37         Math.sin(dLat / 2) * Math.sin(dLat / 2) +
38         Math.cos(degreesToRadians(lat1)) * Math.cos(degreesToRadians(lat2)) *
39         Math.sin(dLon / 2) * Math.sin(dLon / 2);
40     var c = 2 * Math.atan2(Math.sqrt(a), Math.sqrt(1 - a));
41     var distance = R * c; // Distance in km
42     return distance * 0.621371; // Convert to miles
43 }
44
45 function degreesToRadians(degrees) {
46     return degrees * (Math.PI / 180);

```