|  |  |  |
| --- | --- | --- |
| **Nama:**  **(Isi Nama Anda)**  **NIM: (Isi NIM Anda)** | C:\Users\RPL-SI 02\Pictures\288px-Trisakti_Logo.svg.png | **MODUL 12**  **Nama Dosen:**  **Dedy Sugiarto** |
| **Hari/Tanggal:**  **Hari, Tanggal Bulan 2022** | **Praktikum Statistika** | **Nama Asisten Labratorium:**   1. **Azhar Rizki Zulma 065001900001** 2. **Arfa Maulana 064001900039** |

**Regresi Linear Sederhana dan Berganda**

1. **Teori Singkat**

Pada regresi linier akan dibicarakan masalah pendugaan atau peramalan sebuah variabel dependen Y dengan sebuah variabel independen X yang telah diketahui nilainya. Model persamaan linier yang digunakan di sini adalah:



Regresi linier berganda Jika variabel dependen-nya dihubungkan dengan lebih dari satu variabel independen, maka persamaan yang dihasilkan adalah persamaanregresi linier berganda (multiple linier regression). Dalam hal ini kita membatasi pada kasus dua peubah bebas X1 dan X2 saja. Dengan hanya dua peubah bebas, persamaan regresi contohnya menjadi:



Salah satu ukuran kebaikan model adalah dengan melihat koefisien determinasi R2 yang menyatakan proporsi keragaman variabel Y yang dapat dijelaskan oleh variabel X. Namun penggunaan yang lebih baik adalah dengan menggunakan nilai R-Sq(adj), yang merupakan nilai estimasi yang tidak bias (unbiased estimate) dari populasi.

1. **Alat dan Bahan**

Hardware : Laptop/PC

Software : R Studio

1. **Elemen Kompetensi**
   1. Latihan pertama – Regresi

Misalkan ingin dilakukan pendugaan terhadap nilai penjualan dalam USD (variabel Y) berdasarkan nilai biaya iklan yang dikeluarkan dalam USD (variabel X) di suatu perusahaan. Data sampel dalam 12 bulan terakhir adalah sebagai berikut:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **X** | 40 | 20 | 25 | 20 | 30 | 50 | 40 | 20 | 50 | 40 | 25 | 50 |
| **Y** | 385 | 400 | 395 | 365 | 475 | 440 | 490 | 420 | 560 | 525 | 480 | 510 |

1. buatlah persamaan regresi untuk menduga penjualan mingguan (Y) berdasarkan pengeluaran iklan (X).

|  |
| --- |
| df\_nama=read.delim("clipboard")  head(df\_nama)  model\_reg=lm(df\_nama$Y~df\_nama$X)  summary(model\_reg) |

Output:

|  |
| --- |
|  |

Penjelasan: ?

2. Hitunglah R-square (Koefisien determinasi)

|  |
| --- |
| Nilai R Squarenya adalah 0.403 |

Output:

|  |
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|  |

* 1. Latihan Kedua – Tugas

Lakukan analisis regresi untuk memprediksi variabel Price (harga rumah) berdasarkan variabel SqFt (luas tanah), bedrooms dan bathrooms. . Lakukan evaluasi terhadap model regresi yang digunakan.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Price** | **SqFt** | **Bedrooms** | **Bathrooms** | **Offers** | **Brick** | **Neighborhood** |
| 114300 | 1790 | 2 | 2 | 2 | No | East |
| 114200 | 2030 | 4 | 2 | 3 | No | East |
| 114800 | 1740 | 3 | 2 | 1 | No | East |
| 94700 | 1980 | 3 | 2 | 3 | No | East |
| 119800 | 2130 | 3 | 3 | 3 | No | East |
| 114600 | 1780 | 3 | 2 | 2 | No | North |
| 151600 | 1830 | 3 | 3 | 3 | Yes | West |
| 150700 | 2160 | 4 | 2 | 2 | No | West |
| 119200 | 2110 | 4 | 2 | 3 | No | East |
| 104000 | 1730 | 3 | 3 | 3 | No | East |
| 132500 | 2030 | 3 | 2 | 3 | Yes | East |
| 123000 | 1870 | 2 | 2 | 2 | Yes | East |
| 102600 | 1910 | 3 | 2 | 4 | No | North |
| 126300 | 2150 | 3 | 3 | 5 | Yes | North |
| 176800 | 2590 | 4 | 3 | 4 | No | West |
| 145800 | 1780 | 4 | 2 | 1 | No | West |
| 147100 | 2190 | 3 | 3 | 4 | Yes | East |
| 83600 | 1990 | 3 | 3 | 4 | No | North |
| 111400 | 1700 | 2 | 2 | 1 | Yes | East |
| 167200 | 1920 | 3 | 3 | 2 | Yes | West |
| 116200 | 1790 | 3 | 2 | 3 | No | East |
| 113800 | 2000 | 3 | 2 | 4 | No | North |
| 91700 | 1690 | 3 | 2 | 3 | No | North |
| 106100 | 1820 | 3 | 2 | 3 | Yes | North |
| 156400 | 2210 | 4 | 3 | 2 | Yes | East |
| 149300 | 2290 | 4 | 3 | 3 | No | North |
| 137000 | 2000 | 4 | 2 | 3 | No | West |
| 99300 | 1700 | 3 | 2 | 2 | No | East |
| 69100 | 1600 | 2 | 2 | 3 | No | North |
| 188000 | 2040 | 4 | 3 | 1 | Yes | West |
| 182000 | 2250 | 4 | 3 | 3 | Yes | West |
| 112300 | 1930 | 2 | 2 | 2 | Yes | North |
| 135000 | 2250 | 3 | 3 | 3 | Yes | East |
| 139600 | 2280 | 5 | 3 | 4 | Yes | East |
| 117800 | 2000 | 2 | 2 | 3 | No | North |
| 117100 | 2080 | 3 | 3 | 3 | No | North |
| 117500 | 1880 | 2 | 2 | 2 | No | North |
| 147000 | 2420 | 4 | 3 | 4 | No | West |
| 131300 | 1720 | 3 | 2 | 1 | No | West |
| 108200 | 1740 | 3 | 2 | 2 | No | North |
| 106600 | 1560 | 2 | 2 | 1 | No | East |
| 133600 | 1840 | 4 | 3 | 2 | No | West |
| 105600 | 1990 | 2 | 2 | 3 | No | East |
| 154000 | 1920 | 3 | 2 | 1 | Yes | East |
| 166500 | 1940 | 3 | 3 | 2 | Yes | West |
| 103200 | 1810 | 3 | 2 | 3 | No | East |
| 129800 | 1990 | 2 | 3 | 2 | No | North |
| 90300 | 2050 | 3 | 2 | 6 | No | North |
| 115900 | 1980 | 2 | 2 | 2 | No | East |
| 107500 | 1700 | 3 | 2 | 3 | Yes | North |
| 151100 | 2100 | 3 | 2 | 3 | Yes | East |
| 91100 | 1860 | 2 | 2 | 3 | No | North |
| 117400 | 2150 | 2 | 3 | 4 | No | North |
| 130800 | 2100 | 3 | 2 | 3 | No | North |
| 81300 | 1650 | 3 | 2 | 3 | No | North |
| 125700 | 1720 | 2 | 2 | 2 | Yes | East |
| 140900 | 2190 | 3 | 2 | 3 | Yes | East |
| 152300 | 2240 | 4 | 3 | 3 | No | West |
| 138100 | 1840 | 3 | 3 | 1 | No | West |
| 155400 | 2090 | 4 | 2 | 1 | No | West |
| 180900 | 2200 | 3 | 3 | 1 | No | West |
| 100900 | 1610 | 2 | 2 | 2 | No | North |
| 161300 | 2220 | 4 | 3 | 2 | No | West |
| 120500 | 1910 | 2 | 3 | 2 | No | East |
| 130300 | 1860 | 3 | 2 | 2 | No | West |
| 111100 | 1450 | 2 | 2 | 1 | Yes | North |
| 126200 | 2210 | 3 | 3 | 4 | No | North |
| 151900 | 2040 | 4 | 3 | 3 | No | East |
| 93600 | 2140 | 3 | 2 | 4 | No | North |
| 165600 | 2080 | 4 | 3 | 3 | No | West |
| 166700 | 1950 | 3 | 3 | 3 | Yes | West |
| 157600 | 2160 | 4 | 2 | 1 | No | West |
| 107300 | 1650 | 3 | 2 | 3 | No | North |
| 125700 | 2040 | 3 | 3 | 2 | No | East |
| 144200 | 2140 | 3 | 3 | 3 | No | West |
| 106900 | 1900 | 2 | 2 | 2 | No | North |
| 129800 | 1930 | 3 | 2 | 2 | No | West |
| 176500 | 2280 | 4 | 3 | 3 | Yes | West |
| 121300 | 2130 | 3 | 2 | 3 | No | North |
| 143600 | 1780 | 4 | 2 | 1 | No | West |
| 143400 | 2190 | 3 | 3 | 4 | Yes | East |
| 184300 | 2140 | 4 | 3 | 2 | Yes | West |
| 164800 | 2050 | 2 | 2 | 1 | Yes | West |
| 147700 | 2410 | 3 | 3 | 2 | No | East |
| 90500 | 1520 | 2 | 2 | 3 | No | North |
| 188300 | 2250 | 4 | 3 | 2 | Yes | West |
| 102700 | 1900 | 4 | 2 | 4 | No | North |
| 172500 | 1880 | 3 | 3 | 1 | Yes | West |
| 127700 | 1930 | 3 | 3 | 2 | No | North |
| 97800 | 2010 | 2 | 2 | 4 | No | North |
| 143100 | 1920 | 4 | 2 | 2 | No | West |
| 116500 | 2150 | 3 | 2 | 2 | No | East |
| 142600 | 2110 | 3 | 2 | 2 | No | West |
| 157100 | 2080 | 3 | 3 | 2 | No | East |
| 160600 | 2150 | 4 | 3 | 3 | Yes | West |
| 152500 | 1970 | 2 | 2 | 1 | Yes | West |
| 133300 | 2440 | 3 | 3 | 3 | No | East |
| 126800 | 2000 | 2 | 2 | 1 | Yes | East |
| 145500 | 2060 | 3 | 2 | 1 | No | West |
| 171000 | 2080 | 3 | 3 | 2 | Yes | West |
| 103200 | 2010 | 3 | 2 | 5 | No | North |
| 123100 | 2260 | 3 | 3 | 5 | No | East |
| 136800 | 2410 | 3 | 3 | 4 | No | East |
| 211200 | 2440 | 4 | 3 | 3 | Yes | West |
| 82300 | 1910 | 3 | 2 | 4 | No | East |
| 146900 | 2530 | 4 | 3 | 4 | No | West |
| 108500 | 2130 | 3 | 2 | 4 | No | North |
| 134000 | 1890 | 3 | 2 | 1 | Yes | East |
| 117000 | 1990 | 3 | 3 | 3 | Yes | East |
| 108700 | 2110 | 3 | 2 | 3 | No | East |

1. Regresi Berganda

Script

|  |
| --- |
|  |

Output:

|  |
| --- |
|  |

R Square

|  |
| --- |
|  |

Penjelasan:

|  |
| --- |
|  |

2. Menampilkan rata rata harga perbagian

Script:

|  |
| --- |
| print(isi dengan Script) |

Output:

|  |
| --- |
|  |

Penjelasan:

|  |
| --- |
|  |

1. **File Praktikum**

Github Repository:

|  |
| --- |
|  |

1. **Soal Latihan**

Soal:

1. Apa itu Regresi Linear Sederhana dan Regresi Linear Berganda?
2. Sebutkan perbedaan mendasar dari Regresi Linear Sederhana dan Regresi Linear Berganda?

Jawaban:  
1.   
2.

1. **Kesimpulan**
   1. Dalam pengerjaan praktikum Statistika, …
   2. Kita juga dapat mengetahui…
2. **Cek List (✓)**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Elemen Kompetensi** | **Penyelesaian** | |
| **Selesai** | **Tidak Selesai** |
| **1.** | Latihan Pertama | **…** |  |
| **2.** | Latihan Kedua | **…** |  |

1. **Formulir Umpan Balik**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Elemen Kompetensi** | **Waktu Pengerjaan** | **Kriteria** |
| **1.** | Latihan Pertama | … Menit | … |
| **2.** | Latihan Kedua | … Menit | … |

Keterangan:

1. Menarik
2. Baik
3. Cukup
4. Kurang