

**INSTITUTO TECNOLÓGICO Y DE ESTUDIOS SUPERIORES DE MONTERREY**

***Análitica de datos y herramientas de inteligencia artificial***

**Regresión lineal y R2**

**Grupo: 501**

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**Assignment instructions**

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| **£** | • Calculate the linear regression parameters  and  and correlation coefficients  and  for a set of *n* pairs of data,  • given an estimate,  calculate an improved prediction,  where    Table 1 contains historical estimated and actual data for 10 programs. For program 11, the developer has estimated a proxy size of 386 LOC.  Thoroughly test the program. At a minimum, run the following four test cases.  • Test 1: Calculate the regression parameters and correlation coefficients between estimated proxy size and actual added and modified size in Table 1. Calculate plan added and modified size given an estimated proxy size of = 386.  • Test 2: Calculate the regression parameters and correlation coefficients between estimated proxy size and actual development time in Table 1. Calculate time estimate given an estimated proxy size of = 386.  • Test 3: Calculate the regression parameters and correlation coefficients between plan added and modified size and actual added and modified size in Table 1. Calculate plan added and modified size given an estimated proxy size of  = 386.  • Test 4: Calculate the regression parameters and correlation coefficients between plan added and modified size and actual development time in Table 1. Calculate time estimate given an estimated proxy size of = 386. |

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| --- | --- | --- | --- | --- |
| **Program Number** | **Estimated Proxy Size** | **Plan Added and Modified size** | **Actual Added and Modified Size** | **Actual Development Hours** |
| 1 | 130 | 163 | 186 | 15.0 |
| 2 | 650 | 765 | 699 | 69.9 |
| 3 | 99 | 141 | 132 | 6.5 |
| 4 | 150 | 166 | 272 | 22.4 |
| 5 | 128 | 137 | 291 | 28.4 |
| 6 | 302 | 355 | 331 | 65.9 |
| 7 | 95 | 136 | 199 | 19.4 |
| 8 | 945 | 1206 | 1890 | 198.7 |
| 9 | 368 | 433 | 788 | 38.8 |
| 10 | 961 | 1130 | 1601 | 138.2 |

**Table 1**

Expected results are provided in Table 2.

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| **Expected results** |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Expected Values** | | | | | **Actual Values** | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| Test 1 | -22.55 | 1.7279 | 0.9545 | 0.9111 | 644.429 | -22.5525 | 1.7279 | .9545 | .9111 | 644.4293 |
| Test 2 | -4.039 | 0.1681 | 0.9333 | .8711 | 60.858 | -4.0388 | 0.1681 | 0.9333 | 0.8710 | 60.8580 |
| Test 3 | -23.92 | 1.43097 | .9631 | .9276 | 528.4294 | -23.9238 | 1.4309 | 0.9631 | 0.9275 | 528.4293 |
| Test 4 | -4.604 | 0.140164 | .9480 | .8988 | 49.4994 | -4.6037 | 0.1401 | 0.9480 | 0.8987 | 49.4993 |

**Table 2**