Sample Questions

NS Infrastructure Services (NSIS) is building a model to predict the performance of the employees. It has collected data from a large number of employees spread across a number of countries. They have decided to use multiple linear regression. The variables used for building the model are given below.

1. Perf (performance appraisal: 1 = low; 2 = medium; 3 = high).
2. Joiner (recent joiner: 1 = old timer, 2 = new hire)
3. SalaryBenchmark (benchmark salary: 1 = <80 per cent; 2 =80–89.99 per cent; 3 = 90–109.99 per cent; 4 = 110–120 per cent; 5 = >120 per cent of benchmark).
4. CountryCode (country where employee is based: (1 = United States; 2 = UK; 3 = Netherlands; 4 = Russia).
5. Gender (1 = male; 2 = female).
6. AgeCat (age group: 1 = 20–29; 2 = 30–39; 3 = 40–49; 4 = 50–59; 5 = 60–64; 6 = 65+).
7. TenureCat (years with the organization: 1 = less than 1 year; 2 = 1–2 years; 3 = 3–5 years; 4 = 6–10 years; 5 = 11–15 years; 6 = more than 16 years).
8. Leaver (whether or not the employee left the organization: 1 = stayer; 2 = leaver)

They have added the required number of dummy variables corresponding to the Country Code and built a regression model while making sure that only those variables that are statistically significant are in the regression equation. The results of the model are given below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ANOVA Table | | | | |
|  | SS | df | MS | F |
| Regression | 341.129 | 7 | 48.733 | 205.280 |
| Residual | 2097.629 | 8836 | 0.237 |  |
| Total | 2438.758 | 8843 |  |  |
|  | | | | |
|  | Regression Coefficients | |  | |
|  | Coefficient | t value |
| Intercept | 2.645 | 84.633 |
| Benchmark Salary | 0.13 | 17.052 |
| Gender | -0.732 | -34.758 |
| AgeCat | -0.071 | -11.153 |
| TenureCat | 0.026 | 5.6 |
| Ukdummy | 0.068 | 5.067 |
| Netherlandsdummy | 0.538 | 17.713 |
| Russiadummy | 0.661 | 28.469 |

1. Comment on the effectiveness of the above regression
2. Interpret the coefficient corresponding to Ukdummy
3. In your opinion, can NSIS use this equation to predict the performance of a new recruit before he or she is made an offer? Explain why or why not.
4. If you have the option to modify the above variables in order to improve the effectiveness of the regression equation, what will be your suggestion?
5. What, in your opinion, is an ideal profile of a new recruit, if NSIS wants to maximize the performance? Assume that you will have a free choice with respect to each of the above variables