|  |  |  |  |
| --- | --- | --- | --- |
| Checking Status | Good | Bad | Total |
| < 0 | 139 | 135 | 274 |
| 0 <= x < 200 | 164 | 105 | 269 |
| >= 200 | 49 | 14 | 63 |
| No checking | 348 | 46 | 394 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Duration | Good | Bad | Total |
| 0 – 20 | 421 | 133 | 554 |
| 21 – 40 | 241 | 124 | 365 |
| 41 – 60 | 38 | 42 | 80 |
| 61 – 80 | 0 | 1 | 1 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Credit History | Good | Bad | Total |
| All paid | 21 | 28 | 49 |
| Critical / Other existing credit | 243 | 50 | 293 |
| Delayed previously | 60 | 28 | 88 |
| Existing paid | 361 | 169 | 530 |
| No Credits | 15 | 25 | 40 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Purpose | Good | Bad | Total |
| Business | 63 | 34 | 97 |
| Domestic Appliance | 8 | 4 | 12 |
| Education | 28 | 22 | 50 |
| Furniture / Equipment | 123 | 58 | 181 |
| New car | 145 | 89 | 234 |
| Others | 7 | 5 | 12 |
| Radio / TV | 218 | 62 | 280 |
| Repairs | 14 | 8 | 22 |
| Retraining | 8 | 1 | 9 |
| Used car | 86 | 17 | 103 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Credit Amount | Good | Bad | Total |
| 0 – 5000 | 590 | 222 | 812 |
| 5001 – 10000 | 94 | 54 | 148 |
| 10001 – 15000 | 14 | 21 | 35 |
| > 15000 | 2 | 3 | 5 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Savings | Good | Bad | Total |
| < 100 | 386 | 217 | 603 |
| 100 <= x < 500 | 69 | 34 | 103 |
| 500 <= x < 1000 | 52 | 11 | 63 |
| >= 1000 | 42 | 6 | 48 |
| No known savings | 151 | 32 | 183 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Employment | Good | Bad | Total |
| < 1 | 102 | 70 | 172 |
| 1 <= x < 4 | 235 | 104 | 339 |
| 4 <= x < 7 | 135 | 39 | 174 |
| >= 7 | 189 | 64 | 253 |
| Unemployed | 39 | 23 | 62 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Instalment | Good | Bad | Total |
| 1 | 102 | 34 | 136 |
| 2 | 169 | 62 | 231 |
| 3 | 112 | 45 | 157 |
| 4 | 317 | 159 | 476 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Personal Status | Good | Bad | Total |
| Female div/dep/mar | 201 | 109 | 310 |
| Male div/sep | 30 | 20 | 50 |
| Male mar/div | 67 | 25 | 92 |
| Male single | 402 | 146 | 548 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Other Parties | Good | Bad | Total |
| Co-applicant | 23 | 18 | 41 |
| Guarantor | 42 | 10 | 52 |
| None | 635 | 272 | 907 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Residents Since | Good | Bad | Total |
| 1 | 94 | 36 | 130 |
| 2 | 211 | 97 | 308 |
| 3 | 106 | 43 | 149 |
| 4 | 289 | 124 | 413 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Property | Good | Bad | Total |
| Car | 230 | 102 | 332 |
| Life Insurance | 161 | 71 | 232 |
| Real Estate | 222 | 60 | 282 |
| No known | 87 | 67 | 154 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Age | Good | Bad | Total |
| 0 – 20 | 10 | 6 | 16 |
| 21 – 40 | 488 | 222 | 710 |
| 41 – 60 | 167 | 62 | 229 |
| 61 – 80 | 35 | 10 | 45 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Other Payment | Good | Bad | Total |
| Bank | 82 | 57 | 139 |
| None | 590 | 224 | 814 |
| Stores | 28 | 19 | 47 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Housing | Good | Bad | Total |
| For free | 64 | 44 | 108 |
| Own | 527 | 186 | 713 |
| Rent | 109 | 70 | 179 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Existing Credit | Good | Bad | Total |
| 1 | 433 | 200 | 633 |
| 2 | 241 | 92 | 333 |
| 3 | 22 | 6 | 28 |
| 4 | 4 | 2 | 8 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Job | Good | Bad | Total |
| Management/High qualified/Self- employed | 97 | 51 | 148 |
| Skilled | 444 | 186 | 630 |
| Unemployed/Unskilled non-resident | 15 | 7 | 22 |
| Unskilled resident | 144 | 56 | 200 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Dependants | Good | Bad | Total |
| 1 | 591 | 254 | 845 |
| 2 | 109 | 46 | 155 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Own Telephone | Good | Bad | Total |
| Yes | 291 | 113 | 404 |
| No | 409 | 187 | 596 |
| Total | 700 | 300 | 1000 |

|  |  |  |  |
| --- | --- | --- | --- |
| Foreign Worker | Good | Bad | Total |
| Yes | 667 | 296 | 963 |
| No | 33 | 4 | 37 |
| Total | 700 | 300 | 1000 |

|  |  |
| --- | --- |
| Attribute | Value |
| Checking Status | >= 200 |
| Duration | 41 – 60 |
| Credit history | Previously delayed |
| Purpose | Furniture/equipment |
| Credit amount | 5001 – 10000 |
| Savings | 500 – 1000 |
| Employment | < 1 |
| Instalment | 3 |
| Personal status | Female div/dep/mar |
| Other parties | None |
| Residents since | 4 |
| Property | Life insurance |
| Age | 21 – 40 |
| Payment | None |
| Housing | Own |
| Existing credit | 1 |
| Job | Skilled |
| Number of dependants | 1 |
| Own telephone | Yes |
| Foreign worker | No |

|  |  |
| --- | --- |
| Attribute | Probability |
| P (Checking Status >= 200 | Credit Risk = Bad) | 14/300 |
| P (Duration = [41, 60] | Credit Risk = Bad) | 42/300 |
| P (Credit History = delayed previously | Credit Risk = Bad) | 28/300 |
| P (Purpose = Furniture/Equipment | Credit Risk = Bad) | 58/300 |
| P (Credit Amount = [5001 , 10000] | Credit Risk = Bad) | 54/300 |
| P (Savings = [500, 1000] | Credit Risk = Bad) | 11/300 |
| P (Employment < 1 | Credit Risk = Bad) | 70/300 |
| P (Instalment = 4 | Credit Risk = Bad) | 45/300 |
| P (Personal Status = Female div/dep/marr | Credit Risk = Bad) | 109/300 |
| P (Other Parties = None | Credit Risk = Bad) | 272/300 |
| P (Residents since = 4 | Credit Risk = Bad) | 124/300 |
| P (Property = Life Insurance | Credit Risk = Bad) | 71/300 |
| P (Age = [21, 40] | Credit Risk = Bad) | 222/300 |
| P (Payment = None | Credit Risk = Bad) | 224/300 |
| P (Housing = Own | Credit Risk = Bad) | 186/300 |
| P (Existing Credit = 1 | Credit Risk = Bad) | 200/300 |
| P (Job = Skilled | Credit Risk = Bad) | 186/300 |
| P (Number of dependants = 1 | Credit Risk = Bad) | 254/300 |
| P (Own Telephone = Yes | Credit Risk = Bad) | 113/300 |
| P(Foreign Worker = No | Credit Risk = Bad) | 4/300 |

|  |  |
| --- | --- |
| Attributes | Probability |
| P (Checking status >= 200) | 63/1000 | |
| P (Duration = [41, 60] | 80/1000 | |
| P (Credit History = delayed previously) | 88/1000 | |
| P (Purpose = Furniture/Equipment) | 181/1000 | |
| P (Credit Amount = [5001, 10000] | 148/1000 | |
| P (Savings = [500, 1000] | 63/1000 | |
| P (Employment < 1) | 172/1000 | |
| P (Instalment = 4) | 157/1000 | |
| P (Personal Status = Female div/dep/marr) | 310/1000 | |
| P (Other Parties = None) | 907/1000 | |
| P (Residents since = 4) | 413/1000 | |
| P (Property = Life insurance) | 232/1000 | |
| P (Age = [21, 40]) | 710/1000 | |
| P (Payment = None) | 814/1000 | |
| P (Housing = Own) | 713/1000 | |
| P (Existing credit = 1) | 633/1000 | |
| P (Job = Skilled) | 630/1000 | |
| P (Number of dependants = 1) | 845/1000 | |
| P (Own Telephone = Yes) | 404/1000 | |
| P (Foreign Worker = No) | 37/1000 | |

=

=

**P ( B | A ) . P ( A )**

**=**

**P ( A | B )**

**P ( B )**

**Prior Probability**

**Conditional Probability**

**P (xi | spam) . P (spam)**

**P (spam | xi)**

**=**

**P (xi)**

**Posterior Probability**

**Evidence**

|  |  |  |  |
| --- | --- | --- | --- |
| Day | Discount | Free Delivery | Purchase |
| Weekday | Yes | Yes | Yes |
| Weekday | Yes | Yes | Yes |
| Weekday | No | No | No |
| Holiday | Yes | Yes | Yes |
| Weekend | Yes | Yes | Yes |
| Holiday | No | No | No |
| Weekend | Yes | No | Yes |
| Weekday | Yes | Yes | Yes |
| Weekend | Yes | Yes | Yes |
| Holiday | Yes | Yes | Yes |
| Holiday | No | Yes | Yes |
| Holiday | No | No | No |
| Weekend | Yes | Yes | Yes |
| Holiday | Yes | Yes | Yes |
| Weekday | Yes | No | Yes |