**Table A1.** Pairwise correlation scores between all variables

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **X1** | **X2** | **X3** | **X4** | **X5** | **X6** | **X7** | **X8** | **X9** | **X10** | **X11** | **X12** | **X13** | **X14** | **X15** | **X16** | **X17** | **X18** | **X19** | **X20** | **X21** | **X22** | **X23** | **X24** | **Y** |
| **X1** | **1.00** | 0.93 | 0.83 | 0.76 | 0.82 | -0.76 | -0.07 | 0.16 | 0.19 | -0.24 | -0.02 | 0.29 | 0.00 | -0.20 | -0.19 | 0.19 | 0.13 | -0.23 | 0.11 | 0.04 | -0.19 | 0.01 | -0.01 | 0.25 | 0.85 |
| **X2** | 0.93 | **1.00** | 0.80 | 0.72 | 0.78 | -0.72 | -0.05 | 0.12 | 0.28 | -0.31 | 0.04 | 0.21 | 0.04 | -0.20 | -0.19 | 0.31 | 0.18 | -0.29 | 0.12 | 0.07 | -0.12 | -0.03 | 0.04 | 0.16 | 0.83 |
| **X3** | 0.83 | 0.80 | **1.00** | 0.95 | 0.99 | -0.93 | -0.11 | 0.45 | 0.16 | -0.32 | -0.03 | 0.31 | 0.05 | -0.33 | -0.16 | 0.20 | 0.13 | -0.24 | 0.12 | 0.05 | -0.21 | 0.09 | -0.09 | 0.31 | 0.92 |
| **X4** | 0.76 | 0.72 | 0.95 | **1.00** | 0.98 | -0.89 | -0.12 | 0.48 | 0.08 | -0.26 | -0.03 | 0.31 | 0.03 | -0.25 | -0.19 | 0.17 | 0.09 | -0.16 | 0.07 | 0.04 | -0.26 | 0.18 | -0.20 | 0.41 | 0.88 |
| **X5** | 0.82 | 0.78 | 0.99 | 0.98 | **1.00** | -0.93 | -0.12 | 0.47 | 0.14 | -0.30 | -0.03 | 0.31 | 0.04 | -0.31 | -0.18 | 0.20 | 0.12 | -0.21 | 0.10 | 0.04 | -0.23 | 0.12 | -0.13 | 0.35 | 0.92 |
| **X6** | -0.76 | -0.72 | -0.93 | -0.89 | -0.93 | **1.00** | 0.12 | -0.32 | -0.21 | 0.31 | 0.05 | -0.30 | -0.10 | 0.40 | 0.16 | -0.15 | -0.10 | 0.28 | -0.17 | -0.09 | 0.21 | -0.16 | 0.16 | -0.30 | -0.91 |
| **X7** | -0.07 | -0.05 | -0.11 | -0.12 | -0.12 | 0.12 | **1.00** | -0.04 | -0.14 | -0.15 | -0.03 | 0.07 | 0.01 | -0.05 | -0.04 | -0.02 | -0.03 | 0.01 | 0.02 | -0.03 | -0.05 | 0.01 | -0.04 | 0.11 | -0.03 |
| **X8** | 0.16 | 0.12 | 0.45 | 0.48 | 0.47 | -0.32 | -0.04 | **1.00** | -0.20 | -0.23 | -0.06 | 0.22 | -0.05 | -0.07 | -0.09 | -0.03 | -0.04 | 0.05 | 0.00 | -0.06 | -0.12 | 0.04 | -0.07 | 0.21 | 0.10 |
| **X9** | 0.19 | 0.28 | 0.16 | 0.08 | 0.14 | -0.21 | -0.14 | -0.20 | **1.00** | -0.86 | 0.23 | -0.20 | 0.11 | -0.18 | 0.04 | 0.13 | 0.09 | -0.59 | 0.39 | 0.28 | 0.27 | -0.20 | 0.13 | -0.28 | 0.23 |
| **X10** | -0.24 | -0.31 | -0.32 | -0.26 | -0.30 | 0.31 | -0.15 | -0.23 | -0.86 | **1.00** | -0.19 | 0.08 | -0.09 | 0.22 | 0.02 | -0.11 | -0.06 | 0.56 | -0.39 | -0.25 | -0.20 | 0.18 | -0.08 | 0.16 | -0.26 |
| **X11** | -0.02 | 0.04 | -0.03 | -0.03 | -0.03 | 0.05 | -0.03 | -0.06 | 0.23 | -0.19 | **1.00** | -0.18 | -0.27 | -0.09 | -0.14 | 0.18 | 0.01 | -0.15 | -0.06 | 0.35 | 0.15 | -0.17 | 0.10 | -0.11 | 0.00 |
| **X12** | 0.29 | 0.21 | 0.31 | 0.31 | 0.31 | -0.30 | 0.07 | 0.22 | -0.20 | 0.08 | -0.18 | **1.00** | -0.50 | -0.17 | -0.25 | 0.01 | -0.09 | -0.10 | 0.17 | -0.09 | -0.21 | 0.17 | -0.16 | 0.29 | 0.27 |
| **X13** | 0.00 | 0.04 | 0.05 | 0.03 | 0.04 | -0.10 | 0.01 | -0.05 | 0.11 | -0.09 | -0.27 | -0.50 | **1.00** | -0.25 | -0.37 | -0.09 | 0.15 | -0.04 | 0.07 | -0.14 | -0.04 | 0.06 | 0.02 | -0.06 | 0.07 |
| **X14** | -0.20 | -0.20 | -0.33 | -0.25 | -0.31 | 0.40 | -0.05 | -0.07 | -0.18 | 0.22 | -0.09 | -0.17 | -0.25 | **1.00** | -0.13 | -0.03 | -0.04 | 0.24 | -0.18 | -0.07 | -0.07 | 0.04 | 0.09 | -0.09 | -0.33 |
| **X15** | -0.19 | -0.19 | -0.16 | -0.19 | -0.18 | 0.16 | -0.04 | -0.09 | 0.04 | 0.02 | -0.14 | -0.25 | -0.37 | -0.13 | **1.00** | -0.01 | -0.08 | 0.12 | -0.12 | 0.07 | 0.24 | -0.18 | 0.02 | -0.11 | -0.17 |
| **X16** | 0.19 | 0.31 | 0.20 | 0.17 | 0.20 | -0.15 | -0.02 | -0.03 | 0.13 | -0.11 | 0.18 | 0.01 | -0.09 | -0.03 | -0.01 | **1.00** | -0.02 | -0.10 | -0.10 | -0.03 | 0.00 | -0.06 | 0.09 | -0.04 | 0.23 |
| **X17** | 0.13 | 0.18 | 0.13 | 0.09 | 0.12 | -0.10 | -0.03 | -0.04 | 0.09 | -0.06 | 0.01 | -0.09 | 0.15 | -0.04 | -0.08 | -0.02 | **1.00** | -0.18 | -0.18 | -0.05 | -0.01 | -0.01 | 0.05 | -0.05 | 0.15 |
| **X18** | -0.23 | -0.29 | -0.24 | -0.16 | -0.21 | 0.28 | 0.01 | 0.05 | -0.59 | 0.56 | -0.15 | -0.10 | -0.04 | 0.24 | 0.12 | -0.10 | -0.18 | **1.00** | -0.80 | -0.22 | -0.08 | -0.02 | -0.08 | 0.24 | -0.26 |
| **X19** | 0.11 | 0.12 | 0.12 | 0.07 | 0.10 | -0.17 | 0.02 | 0.00 | 0.39 | -0.39 | -0.06 | 0.17 | 0.07 | -0.18 | -0.12 | -0.10 | -0.18 | -0.80 | **1.00** | -0.23 | 0.03 | 0.07 | 0.02 | -0.17 | 0.12 |
| **X20** | 0.04 | 0.07 | 0.05 | 0.04 | 0.04 | -0.09 | -0.03 | -0.06 | 0.28 | -0.25 | 0.35 | -0.09 | -0.14 | -0.07 | 0.07 | -0.03 | -0.05 | -0.22 | -0.23 | **1.00** | 0.10 | -0.07 | 0.04 | -0.09 | 0.07 |
| **X21** | -0.19 | -0.12 | -0.21 | -0.26 | -0.23 | 0.21 | -0.05 | -0.12 | 0.27 | -0.20 | 0.15 | -0.21 | -0.04 | -0.07 | 0.24 | 0.00 | -0.01 | -0.08 | 0.03 | 0.10 | **1.00** | -0.37 | -0.43 | -0.22 | -0.22 |
| **X22** | 0.01 | -0.03 | 0.09 | 0.18 | 0.12 | -0.16 | 0.01 | 0.04 | -0.20 | 0.18 | -0.17 | 0.17 | 0.06 | 0.04 | -0.18 | -0.06 | -0.01 | -0.02 | 0.07 | -0.07 | -0.37 | **1.00** | -0.45 | -0.22 | 0.12 |
| **X23** | -0.01 | 0.04 | -0.09 | -0.20 | -0.13 | 0.16 | -0.04 | -0.07 | 0.13 | -0.08 | 0.10 | -0.16 | 0.02 | 0.09 | 0.02 | 0.09 | 0.05 | -0.08 | 0.02 | 0.04 | -0.43 | -0.45 | **1.00** | -0.26 | -0.12 |
| **X24** | 0.25 | 0.16 | 0.31 | 0.41 | 0.35 | -0.30 | 0.11 | 0.21 | -0.28 | 0.16 | -0.11 | 0.29 | -0.06 | -0.09 | -0.11 | -0.04 | -0.05 | 0.24 | -0.17 | -0.09 | -0.22 | -0.22 | -0.26 | **1.00** | 0.31 |
| **Y** | 0.85 | 0.83 | 0.92 | 0.88 | 0.92 | -0.91 | -0.03 | 0.10 | 0.23 | -0.26 | 0.00 | 0.27 | 0.07 | -0.33 | -0.17 | 0.23 | 0.15 | -0.26 | 0.12 | 0.07 | -0.22 | 0.12 | -0.12 | 0.31 | **1.00** |

X1: Engine\_Size

X2: Cylinders

X3: Fuel\_Consumption\_City

X4: Fuel\_Consumption\_Hwy

X5: Fuel\_Consumption\_Comb

X6: Fuel\_Consumption\_Comb\_MPG

X7: Fuel\_Type\_Diesel

X8: Fuel\_Type\_Ethanol

X9: Fuel\_Type\_Premium\_Gasoline

X10: Fuel\_Type\_Regular\_Gasoline

X11: Transmission\_Automated Manual

X12: Transmission\_Automatic

X13: Transmission\_Automatic\_Selective

X14: Transmission\_CVT

X15: Transmission\_Manual

X16: Make\_Type\_Brand\_High\_Performance

X17: Make\_Type\_Brand\_Luxury

X18: Make\_Type\_Brand\_Mainstream

X19: Make\_Type\_Brand\_Premium

X20: Make\_Type\_Brand\_Premium\_Plus

X21: Vehicle\_Class\_Type\_Compact

X22: Vehicle\_Class\_Type\_SUV

X23: Vehicle\_Class\_Type\_Sedan

X24: Vehicle\_Class\_Type\_Truck

Y: CO2\_Emissions