**Linear Regression:**

Problem: Predicting house prices based on features like size, number of bedrooms, and location.

Dataset: A dataset containing information about houses including features like size (in square feet), number of bedrooms, number of bathrooms, and sale prices.

| **Size (sqft)** | **Bedrooms** | **Bathrooms** | **Location** | **Sale Price** |
| --- | --- | --- | --- | --- |
| 1500 | 3 | 2 | Suburb A | 300000 |
| 2000 | 4 | 3 | Suburb B | 400000 |
| 1800 | 3 | 2.5 | Suburb A | 350000 |
| 2200 | 3 | 2.5 | Suburb B | 420000 |
| 1600 | 2 | 1.5 | Suburb C | 280000 |
| 2400 | 4 | 2.5 | Suburb C | 410000 |
| 1900 | 3 | 2 | Suburb A | 330000 |
| 2100 | 4 | 2.5 | Suburb B | 390000 |
| 1700 | 3 | 2 | Suburb C | 320000 |
| 2300 | 4 | 3 | Suburb A | 380000 |
| 2500 | 5 | 3 | Suburb B | 430000 |
| 2000 | 3 | 2.5 | Suburb C | 360000 |
| 1800 | 2 | 1.5 | Suburb A | 310000 |
| 2100 | 4 | 2.5 | Suburb B | 400000 |
| 2200 | 3 | 2 | Suburb C | 340000 |
| 1900 | 3 | 2.5 | Suburb A | 370000 |
| 2300 | 4 | 3 | Suburb B | 420000 |
| 2400 | 4 | 2.5 | Suburb C | 400000 |
| 1700 | 2 | 1.5 | Suburb A | 320000 |
| 2000 | 3 | 2 | Suburb B | 380000 |
| 1800 | 3 | 2.5 | Suburb C | 360000 |
| 2100 | 4 | 3 | Suburb A | 390000 |
| 2500 | 5 | 3 | Suburb B | 430000 |
| 2200 | 3 | 2 | Suburb C | 340000 |
| 1900 | 3 | 2.5 | Suburb A | 370000 |
| 2300 | 4 | 3 | Suburb B | 420000 |
| 2400 | 4 | 2.5 | Suburb C | 400000 |
| 1700 | 2 | 1.5 | Suburb A | 320000 |
| 2000 | 3 | 2 | Suburb B | 380000 |
| 1800 | 3 | 2.5 | Suburb C | 360000 |

**Multiple Regression:**

Problem: Predicting a student's final exam score based on various factors such as hours spent studying, previous exam scores, and attendance.

Dataset: A dataset containing information about students including features like hours spent studying, previous exam scores in different subjects, attendance percentage, and their final exam scores.

| **Hours Studied** | **Previous Math Score** | **Previous Science Score** | **Attendance (%)** | **Final Exam Score** |
| --- | --- | --- | --- | --- |
| 10 | 85 | 90 | 95 | 92 |
| 8 | 75 | 80 | 90 | 85 |
| 12 | 90 | 85 | 100 | 94 |
| 6 | 80 | 85 | 80 | 82 |
| 9 | 88 | 92 | 98 | 91 |
| 11 | 82 | 88 | 92 | 87 |
| 7 | 78 | 84 | 85 | 80 |
| 5 | 72 | 76 | 70 | 75 |
| 8 | 82 | 90 | 95 | 89 |
| 10 | 90 | 95 | 98 | 96 |
| 12 | 85 | 88 | 94 | 90 |
| 7 | 70 | 75 | 85 | 78 |
| 9 | 88 | 92 | 98 | 91 |
| 11 | 82 | 88 | 92 | 87 |
| 7 | 78 | 84 | 85 | 80 |
| 5 | 72 | 76 | 70 | 75 |
| 8 | 82 | 90 | 95 | 89 |
| 10 | 90 | 95 | 98 | 96 |
| 12 | 85 | 88 | 94 | 90 |
| 7 | 70 | 75 | 85 | 78 |
| 9 | 88 | 92 | 98 | 91 |
| 11 | 82 | 88 | 92 | 87 |
| 7 | 78 | 84 | 85 | 80 |
| 5 | 72 | 76 | 70 | 75 |
| 8 | 82 | 90 | 95 | 89 |
| 10 | 90 | 95 | 98 | 96 |
| 12 | 85 | 88 | 94 | 90 |
| 7 | 70 | 75 | 85 | 78 |
| 9 | 88 | 92 | 98 | 91 |
| 11 | 82 | 88 | 92 | 87 |
| 7 | 78 | 84 | 85 | 80 |

**Random Forest:**

Problem: Predicting customer churn for a telecom company based on features like customer demographics, usage patterns, and customer service interactions.

Dataset: A dataset containing customer information including features like age, gender, monthly usage, contract type, customer service calls, and whether the customer churned or not.

| **Age** | **Gender** | **Monthly Usage (GB)** | **Contract Type** | **Customer Service Calls** | **Churned** |
| --- | --- | --- | --- | --- | --- |
| 30 | Male | 100 | Monthly | 2 | 0 |
| 45 | Female | 150 | Annual | 1 | 1 |
| 35 | Male | 120 | Monthly | 3 | 0 |
| 50 | Male | 200 | Monthly | 0 | 1 |
| 28 | Female | 80 | Monthly | 1 | 0 |
| 42 | Male | 180 | Monthly | 2 | 1 |
| 33 | Female | 130 | Monthly | 2 | 0 |
| 38 | Male | 140 | Annual | 1 | 0 |
| 25 | Female | 90 | Monthly | 4 | 1 |
| 55 | Male | 170 | Monthly | 0 | 1 |
| 40 | Female | 160 | Monthly | 1 | 0 |
| 48 | Male | 190 | Annual | 3 | 1 |
| 32 | Female | 110 | Monthly | 2 | 0 |
| 37 | Male | 130 | Monthly | 2 | 0 |
| 29 | Female | 100 | Annual | 1 | 0 |
| 60 | Male | 150 | Monthly | 1 | 1 |
| 26 | Female | 80 | Monthly | 3 | 0 |
| 44 | Male | 170 | Annual | 2 | 1 |
| 36 | Female | 120 | Monthly | 2 | 0 |
| 52 | Male | 180 | Monthly | 1 | 1 |
| 31 | Female | 110 | Monthly | 4 | 0 |
| 39 | Male | 140 | Monthly | 2 | 0 |
| 27 | Female | 90 | Annual | 1 | 0 |
| 58 | Male | 160 | Monthly | 3 | 1 |
| 34 | Female | 130 | Monthly | 2 | 0 |
| 46 | Male | 190 | Monthly | 0 | 1 |
| 31 | Female | 100 | Monthly | 1 | 0 |
| 51 | Male | 180 | Monthly | 2 | 1 |
| 30 | Female | 110 | Annual | 3 | 0 |
| 40 | Male | 150 | Monthly | 4 | 1 |

**Support Vector Machine (SVM):**

Problem: Classifying whether a bank loan applicant is likely to default or not based on features like credit score, income, and debt-to-income ratio.

Dataset: A dataset containing information about loan applicants including features like credit score, income, debt-to-income ratio, employment status, and whether they defaulted on their loans.

| **Credit Score** | **Income ($)** | **Debt-to-Income Ratio** | **Employment Status** | **Defaulted** |
| --- | --- | --- | --- | --- |
| 700 | 50000 | 0.3 | Employed | 0 |
| 650 | 40000 | 0.5 | Unemployed | 1 |
| 720 | 60000 | 0.2 | Employed | 0 |
| 680 | 55000 | 0.4 | Self-Employed | 1 |
| 750 | 70000 | 0.3 | Employed | 0 |
| 680 | 48000 | 0.6 | Employed | 1 |
| 710 | 52000 | 0.3 | Employed | 0 |
| 690 | 58000 | 0.4 | Self-Employed | 0 |
| 730 | 65000 | 0.2 | Employed | 0 |
| 720 | 60000 | 0.5 | Self-Employed | 1 |
| 700 | 50000 | 0.3 | Employed | 0 |
| 660 | 42000 | 0.6 | Unemployed | 1 |
| 740 | 67000 | 0.4 | Employed | 0 |
| 710 | 54000 | 0.3 | Employed | 0 |
| 730 | 63000 | 0.5 | Self-Employed | 1 |
| 690 | 48000 | 0.2 | Employed | 0 |
| 720 | 55000 | 0.4 | Employed | 0 |
| 710 | 52000 | 0.3 | Self-Employed | 1 |
| 690 | 50000 | 0.6 | Employed | 0 |
| 720 | 58000 | 0.5 | Employed | 0 |
| 680 | 47000 | 0.4 | Self-Employed | 1 |
| 730 | 65000 | 0.3 | Employed | 0 |
| 720 | 60000 | 0.2 | Employed | 0 |
| 710 | 54000 | 0.5 | Self-Employed | 1 |
| 700 | 50000 | 0.3 | Employed | 0 |
| 660 | 42000 | 0.6 | Unemployed | 1 |
| 740 | 67000 | 0.4 | Employed | 0 |
| 710 | 54000 | 0.3 | Employed | 0 |
| 730 | 63000 | 0.5 | Self-Employed | 1 |