Task 0:

Sharan Bhatia: 50%

Evan: 50%

Task 1:

plot of cmp\_b\_s and cmp\_a\_s. (Red: anomalous Blue: normal)

Chart, line chart

Description automatically generated

Plot of cmp\_b\_d and cmp\_a\_d (Red: anomalous Blue: normal)

Chart, scatter chart

Description automatically generated

Mean and standard deviation from the training data on the features for task 2:

|  | **f1\_d** | **f2\_d** | **pr\_d** | **lq\_d** | **cmp\_a\_d** | **cmp\_b\_d** | **cmp\_c\_d** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **mean** | 6.697496 | 0.000613 | 0.192335 | 0.029739 | 0.004803 | -0.021053 | 0.016147 |
| **std** | 1268.971853 | 0.476984 | 26.702247 | 1.817016 | 0.312059 | 0.263566 | 0.143491 |

Tweaking the threshold on the validation set for task 2:

Chart, histogram

Description automatically generated

Mean and standard deviation from the training data on the features for task 3:

|  | **f1\_a** | **f1\_s** | **f1\_c** | **f2\_a** | **f2\_s** | **f2\_c** | **pr\_s** | **prd\_a** | **prd\_c** | **prd\_s** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **mean** | 41753.387328 | 42298.660092 | 41803.568114 | 2144.910169 | 181.651916 | 2145.057741 | 54576.384159 | 32851.527440 | 32852.335922 | 13846.748697 |
| **std** | 30637.885196 | 30671.910502 | 30608.408812 | 350.501435 | 29.766917 | 350.530231 | 673.933161 | 23779.986463 | 23780.256622 | 10016.939312 |

Tweaking the threshold for Task 3:

Chart

Description automatically generated

Task 2: Independent Gaussian Results:

Features: {f1\_d, f2\_d, pr\_d, lq\_d, cmp\_a\_d, cmp\_b\_d, cmp\_c\_d}

Threshold: 0.120 (if percentage of anomalous examples is greater than this value then csv is anomalous)

true positives: 38

false positives: 0

false negatives: 1

true negatives: 19

precision: 1.0

recall: 0.9743589743589743

f1 score: 0.9870129870129869

Task 3: Multivariate Gaussian Results

Features: {f1\_a, f1\_s, f1\_c, f2\_a, f2\_s, f2\_c, pr\_s, prd\_a, prd\_c, prd\_s}

Threshold: 0.34996 (if percentage of anomalous examples is less than this value then the csv is anomalous)

true positives: 36

false positives: 1

false negatives: 3

true negatives: 18

precision: 0.972972972972973

recall: 0.9230769230769231

f1 score: 0.9473684210526315