

## **Academic Reflective Journal**

### **Introduction**

The lab really showed me how crucial getting data ready is for useful machine learning. It wasn't just about numbers; it was about turning a messy pile into something a computer could actually learn from. Thinking through what happened helps me see why tidying up data - organizing things, correcting errors - matters so much when trying to predict outcomes.

### **Description of Experience or Topic**

The lab showed me ways to deal with incomplete info, transform text into numbers, adjust ranges, spot unusual values - also, build helpful additions to boost results. Honestly, I hadn't grasped just how much work happens before a model learns. I learned from my time at the lab how much effort goes into getting data ready - it really eats up a data scientist's day. Though tedious, this work ultimately determines whether a model succeeds. Going through each stage revealed even tiny errors, such as overlooking incomplete information, can snowball into major issues down the line.

### **Personal Reflection**

Thinking things over, my view of data shifted. Initially, I believed the machine learning model mattered most; however, now I see data quality holds equal weight. The lab work felt like a real-world echo of my coursework - we tidied, reshaped, then standardized the information. It drove home how crucial precision is, alongside thoughtful groundwork, in both computing also when digging into data.

### **Discussion of Improvements and Learning**

Working on this really sharpened how I approach problems alongside my tech abilities. Now I feel much better about utilizing tools such as pandas, NumPy, yet also scikit-learn. Working with different datasets sharpened how I tackle challenges - each one demanded a unique strategy. Moving forward, I'll prioritize verifying then tidying up data prior to building any models; experience taught me this matters.

### **Conclusion**

Working with data in this lab underscored a key point: good outcomes hinge on careful

preparation. It also instilled patience, accuracy, alongside deliberate consideration - skills sure to benefit my studies going forward.