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| Fraud Detection with ANN | |
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|  | Introduction In this machine learning project, we **tackled** the problem of detecting **fraudulent** credit card transactions using **numpy** **machine,** **scikit-learn** and other python libraries. We **tackle** **this** problem by creating a binary classifier and experimenting with various machine learning techniques to see which **works** **best.** | |  |
|  | Class Imbalace Handling Using Smote Classification using **unbalanced** **class** data is biased in favor of the majority  class. The bias is even **greater** for high-dimensional data, where the number of variables greatly exceeds the number of samples. **This** problem can be **mitigated** by **downsampling** or oversampling, which **produces** class-balanced data. **In** **general,** **downsampling** is **useful,** while random oversampling is not. **The** Synthetic Minority Oversampling **Technique** (SMOTE) is a very popular oversampling method that **has** **been** proposed to improve random **oversampling,** but its behavior on high-dimensional data has not been  **studied** **in** **depth.** | |  |

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|  |  | **ANN MODEL**  Artificial **neural** networks **(ANN),** or neural **networks,** are computational algorithms.  It **aims** to simulate the behavior of biological systems composed of **"neurons".** **Artificial** **neural** **networks** are **computer** models  inspired by **the** central nervous **system** **of**  **animals.** It is capable of machine learning  **and** pattern recognition.    **Model Loss**  **Model Accuracy** |  |
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|  | Answers  Ans1. c) neural network  Ans2. d) perceptron  Ans3. c)recurrent Neural network  Ans4. c) Backpropogation  Ans5. b) Loss Function  Ans6. b) Sigmoid  Ans7. c) Rectified Linear Unit  Ans 8. c) Dropout  Ans9. c) Convolutional Neural Network  Ans10. c) Pooling Layer  Ans11. b) Recurrent Neural network  Ans12. a) Feedforward neural network  Ans13. c) Convolutional neural network  Ans14.  The output feature map size = 26x26 (28-3+1=26)  The number of parameter in layer will be 32x(3x3x3) + 32 = 2320  The output volume will be 8x8x32 |  |  |