CSCI 4521
IN CLASS ACTIVITY 1

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Problem 1

2 real-life applications where classification can be useful

(a) What are the input features?

(b) What are the predicted response types?

Solution: The application can be:

Classify if a handwritten image is '3' or not '3'

(a) millions of images of different numbers and different ways people write 3 and other images that are not 3

(b) It will be true (if it is 3) and False (if it is not 3)

Classify how likely it is that one has a mental health disorder or not.

(a) Their routine, mood, family history and background

(b) It will be true (if they have a mental health disorder) and False (if they don't have a mental health disorder)

Problem 2

2 real-life applications where regression can be useful

(a) What are the input features?

(b) What are the predicted response types?

Solution: The application can be:

handwriting recognizing software that tells what a character is in the language:

(a) images of letters and numbers and things that aren't letters and number

(b) It will be able to tell what letter/number it is not if it can't find anything within the image.

Classify people based on the color of their hair.

(a) Images of people with different hair colors and images without any person.

(b) It will tell the hex code of a person's hair color but will also tell if it can't find a person in the image.

Problem 3

2 real-life applications where cluster analysis can be useful

(a) How might cluster analysis be useful for each example

Solution: The application can be:

Understanding star systems in space

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(a) based on spectroscopic data of stars, and distance away from them, we might be able to tell what sort of star system we are looking at.

Based on numerical metrics, we can classify marketing data to find ways to increase sales of a product

(a) Based on purchase frequency, time of the day, and buyer space, we might be able to find ways to expand sales of a product