HW6 Check-In 1 (Written)

STUDENT NAME

Search students by name or email...

Q1 Data Formats

4 Points

Identify the data formats below.

Q1.1 Format

2 Points

```
{"restaurants":
  [{
  "restaurant": "Chipotle",
  "Date": "11/01/19",
  "menu": {
    "lunch": {
       "burrito": 7.99,
       "tacos": 6.99,
       "bowl": 8.99
    },
    "dinner": {
       "burrito": 8.99,
       "tacos": 7.99,
       "bowl": 9.99
    }
  }
  },
  {
  "restaurant": "SushiFuku",
  "Date": "11/01/19",
  "menu": {
    "lunch": {
       "bowl": 8.99,
       "sushi": 10.99
    },
    "dinner": {
       "bowl": 10.99,
       "sushi": 12.99
    }
  }
  }]
}
```

What is the format of this data?

- ○ CSV
- ○ JSON
- ○ Raw Text

Submit

Q1.2 Format

2 Points

```
City,          Longitude,  Latitude
Los Angeles,   34°03’N,    118°15’W
New York City, 40°42’46”N, 74°00’21”W
Paris,         48°51’24”N, 2°21’03”E
```

What is the format of this data?

- ○ CSV
- ○ JSON
- ○ Raw Text

Submit

Q2 Data Parsing

10 Points

Determine the best way to parse the following strings. One row of the file represents one class. We split the string on `\n` and use the variable `row` to iterate through each class one line at a time.

```
Professor,  ClassNum,  Room,     Time
Rosenthal,  15482,     GHC4102,  12:00-1:20
Rivers,     15100,     DH2315,   2:30-3:20
Rosenthal,  15110,     DH2315,   3:30-4:20
```

Q2.1 Parse 1

2 Points

How would I determine what classroom each class is in?

- `row.split(',').find("G")`
- `row.split(',')["Room"]`
- `row.split(',')[2]`

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Q2.2 Parse 2

2 Points

How would we determine which department the class is in? Recall, the first two digits of the class number indicate the department.

- `row.split(',')[1][0:1]`
- `row.split(',')[1][0:2]`
- `row.split(',')[1][2:]`

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Q2.3 Parse 3

6 Points

How would we determine the start time and the end time of a class and return the times as strings in variables start and end? Select all that apply. Assume that the code is run from the top selected line to the bottom.

- [ ] `times = row.split(',')[0]`
- [ ] `times = row.split(',')[3]`
- [ ] `start = row.split('-')[0]`
- [ ] `start = times.find('-')-1`
- [ ] `start = times.split('-')[0]`
- [ ] `end = times.find('-')+1`
- [ ] `end = times.split('-')[1]`
- [ ] `end = start+"1:00"`

Submit

Q3 Model Components and Rules

6 Points

Let's say we want to design a simulation that determines how many students will sign up for a course during registration week. The simulation's time loop will loop over each sign-up time slot in order. We need to design the model for this simulation. For each of the following values, would this value work better as a *component* of the model, or as a *rule* of the model?

Q3.1 Model 1

1 Point

FCE ratings of the course from the previous semester

- ○ Component
- ○ Rule

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Q3.2 Model 2

1 Point

Current length of the course's waitlist

- Component
- Rule

Submit

Q3.3 Model 3

1 Point

Students are more likely to sign up if a class is required for their major

- Component
- Rule

Submit

Q3.4 Model 4

1 Point

Number of students who are required to take this class, and haven't taken it yet, organized by sign-up timeslot

- Component
- Rule

Submit

Q3.5 Model 5

1 Point

Students are less likely to sign up for a class if the waitlist is long

- Component
- Rule

Submit

Q3.6 Model 6

1 Point

Whether or not the course will be offered again in the following semester

- Component
- Rule

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Q4 Implementing a Simulation

9 Points

We want to write code for a simulation that moves a circle from the left side of the screen to the right side of the screen in a 400px x 400px window. For each part of the simulation (the Model, the View, and the Time Loop), select the line of code that needs to be included in that part.

Hint: if you're not sure, try implementing this using the simulation starter code!

Q4.1 Model

3 Points

Which line of code should be included in the *model*, in makeModel(data)?

- x = 5
- data["x"] = 5
- canvas.create_oval(x - 20, y - 20, x + 20, y + 20)

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Q4.2 View

3 Points

Which line of code should be included in the *view*, in makeView(data, canvas)?

- data["x"] = data["x"] + 5
- canvas.create_oval(200 - 20, 200 - 20, 200 + 20, 200 + 20)
- canvas.create_oval(data["x"] - 20, 200 - 20, data["x"] + 20, 200 + 20)

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Q4.3 Time Loop
3 Points

Which line of code should be included in the *time loop*, in runRules(data, call)?

- data["x"] = 5
- data["x"] = data["x"] + 5
- x = data["x"] + 5

Submit

Q5 Types of Machine Learning Algorithms
10 Points

For each of the following questions, determine whether you would use a classifier, regression model, clustering, or time-series analysis.

Q5.1 ML 1
2 Points

Using 15-110 students' three numerical exam grades to determine their end-of-semester letter grade.

- Classification
- Regression
- Clustering
- Time-Series Analysis

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Q5.2 ML 2

2 Points

Using 15-110 students' three exam letter grades to determine their end-of-semester letter grade.

- ○ Classification
- ○ Regression
- ○ Clustering
- ○ Time-Series Analysis

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Q5.3 ML 3

2 Points

Predicting this week's numerical check-in grade using the check-in and full homework grades for the prior 11 weeks.

- ○ Classification
- ○ Regression
- ○ Clustering
- ○ Time-Series Analysis

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Q5.4 ML 4

2 Points

Predicting Midterm 2's numerical grade using Midterm 1's numerical grade.

- ○ Classification
- ○ Regression
- ○ Clustering
- ○ Time-Series Analysis

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Q5.5 ML 5

2 Points

Identifying different (previously-unknown) categories of students in class based on their previous two homework grades.

- ○ Classification
- ○ Regression
- ○ Clustering
- ○ Time-Series Analysis

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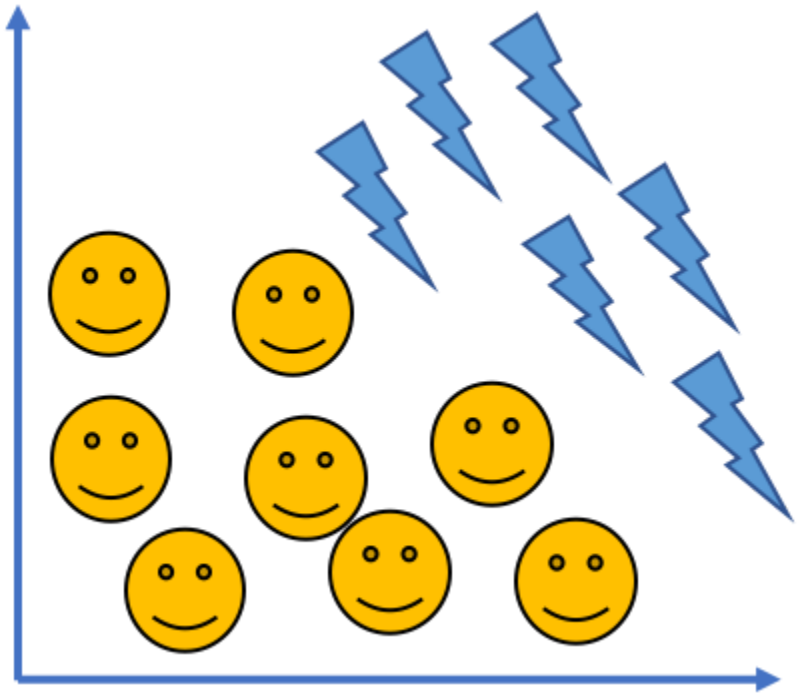
Q6 Classifiers

6 Points

Look at each visualization of data and determine all classifiers that could be used to classify it.

Q6.1 Classification 1

2 Points



- [ ] Logistic Regression
- [ ] Support Vector Machines
- [ ] Decision Trees
- [ ] K-Nearest Neighbors

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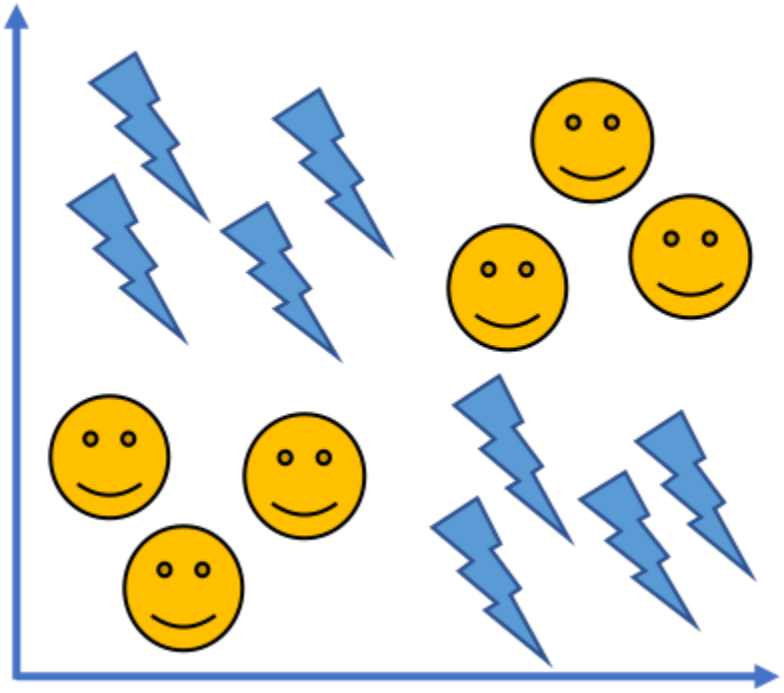
Q6.2 Classification 2

2 Points



- [ ] Logistic Regression
- [ ] Support Vector Machines
- [ ] Decision Trees
- [ ] K-Nearest Neighbors

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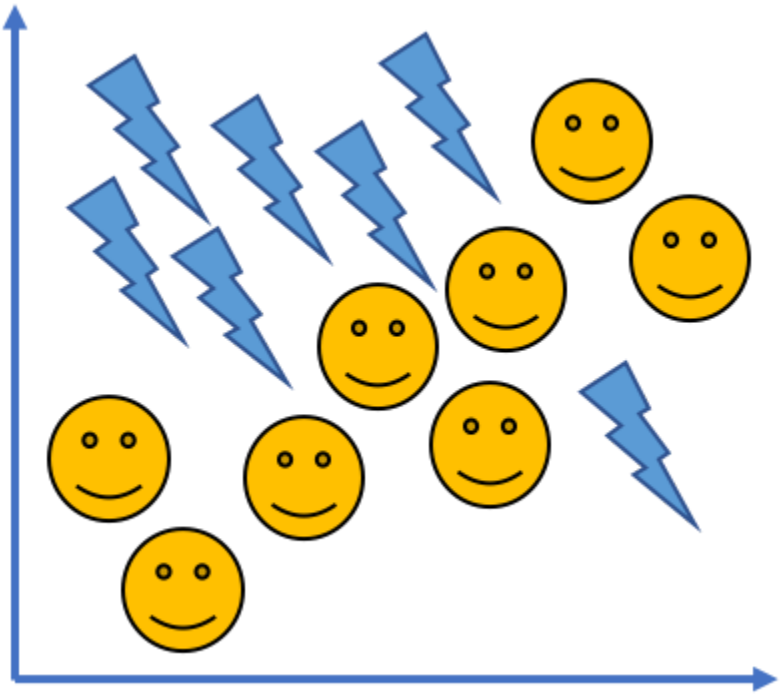
Q6.3 Classification 3

2 Points



- [ ] Logistic Regression
- [ ] Support Vector Machines
- [ ] Decision Trees
- [ ] K-Nearest Neighbors

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Submit Assignment

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