# Exam Breakdown

* **10 multiple choice**
* **Fill in the blanks**
* **Short answers**

**10 multiple choice questions**

* 6 multiple choice for the areas previously covered
* 2 from AI
* 1 from Viz
* 1 from Diversity

**10 Fill in the blanks**

* 1 algorithm and bias
* 1 internet
* 1 data rep
* 3 visualization
* 1 diversity
* 2 artificial Intelligence

**Short answers**

* Algorithms
* Programming
* Data mining
* Data Representation
* Internet - WYSIWIG
* Visualization – what is representation effect gestalt principles

Modules

1. Algorithms
2. Programming
3. Algorithm & Bias
4. Internet
5. Data Representation
6. Data Mining
7. Visualization
8. Diversity
9. Artificial Intelligence

# Exam Breakdown

* **20 multiple choice each 1 points**
* **10 Fill in the blanks - each 10 points**
* **Short answers - 32.5 points**

## 20 multiple choice questions

* (1) Algorithm - difference between hardware, applications, and the operating system.
* (1) Programming - **Discuss the difference between high level, assembly and machine code.**
* (2) Algo and Bias - explain examples of how computers do what they are programmed to do, rather than what their designers want them to do.
* (1) Internet – packets being sent
* (4) Data Representation
  + color picker
  + Dec to Binary
  + Hex to Decimal
  + Binary to Decimal
* (6) Data Mining -Compare and contrast clustering and classification and give examples of each and [CT Building Block] Build regular expressions to match specific patterns
  + Decision Tree is ….
  + Regular expressions (2)
* (5) Visualization
  + Misleading graph
  + Based on position axis
  + Gestalt Principle
  + Infographic
  + Scale of stuff that is important for comparing
* (2) Programming
* (1) artificial intelligence

## 10 Fill in the blanks

* 3 visualization on the image names
* 3 AI fill in the blank NLP steps
* 2 – Intro lecture abstraction , computational thinking
* 1 - data rep
* 1 internet

Short answer questions

* (6 points) Algorithms algorithm is it fair - What are the different metrics we used to evaluate algorithms in class (time, space, works, fair)
* (8 points) Diversity List four theories why women
* 6 points Programming
* 3 Data Rep
* 6 points) Data Mining Clustering
* 5 points) Turing test and can computers pass it
* (6 pts) Regular expression Data mining
* 6 points Internet/Security
* 4 pts ANN
* 4 pts Eliza and Cleverbot

1. Clustering is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ task
2. Supervised learning
3. Neural learning
4. **Unsupervised learning**
5. Rule-based learning
6. [4 pts] What are adversarial examples, in the context of machine learning models (such as neural networks)?

Answer (AI lecture 4, slide 22): Adversarial examples are inputs to machine learning models that an attacker has intentionally designed to cause the model to make a mistake; they’re like optical illusions for machines.

[6pts] List the three different steps involved in Natural language processing   
  
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