**Exam Review**

Terms to know:

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| Functional Programming | Object-Oriented Programming | Filter | Map |
| Reduce | List Comprehension | Lambda | Sort() |
| Iteration | .super() | Classes | Methods |
| Class Attributes | Class Behaviours | \_\_init\_\_ (instantiation | Encapsulation |
| Abstraction | Polymorphism | Inheritance | Parent Class |
| Child Class | Composition | Class Variable | Instance Variable |
| Magic Methods (Dunder Methods) | \_\_str\_\_ | \_\_repr\_\_ | Single Inheritance |
| Eventtype | Frame (pygame) | .surf() | .rect() |
| Collideany() | .blit() | Sprite | GUI |
| Event Driven Model | DataFrame | DataSeries | Jupyter Notebook |
| Pandas | Markdown Code | .groupby() | Loc |
| iLoc | .unique() | .head() / .tail() | .value\_counts() |

Fundamental Understandings of Topics:

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| Unit | Understanding |
| Functional Programming | 1. How does map vs. filter iterate? 2. How does reduce iterate? 3. How does import collections work? 4. What are the advantages of Functional Programming paradigms? Where is the info stored? 5. What is lambda? How does it differ from a regular function? 6. What are list comprehensions? What are they used for? How are they structured (base structure)? |
| Object Oriented Programming | 1. What is a class? What is a method? 2. What are the advantages of OOP – where is information stored? 3. What are the pillars of OOP? 4. Explain each pillar. 5. What is the .super() method? What does it do? 6. How is inheritance in OOP beneficial? Explain Using terms Parent Class and Child Class. 7. What is Composition in OOP? How does this help with Organization? 8. What is the difference between a class variable and an instance variable? |
| Data Science | 1. What are Jupyter Notebooks? What are the Advantages? 2. What is the difference between a DataFrame, DataSeries? 3. How does Organization of a DataFrame differ from traditional rows and column format? 4. What is the difference between loc and iloc 5. .count vs. .valuecounts() ? 6. What are the advantages of using built in module Panadas? |
| PyGame | 1. What keys stages are there in a game loop? Explain. 2. How do Surfaces (.surf) and Rectangles (.rect) work together when creating a sprite 3. What is a Sprite? What are Sprite Groups? Why might it be beneficial to place sprites in sprite groups? 4. What is a USEREVENT? What are they used for? |