



MATES Computer Science

Senior Capstone Project Bi-Weekly Progress Report

Project Title	Athena
Team Members	Me
Dates Covered by Report	4/8-4/18
Link to Github	https://github.com/AlexBH74/Athena

1. **Summary of Project** (Provide a one paragraph summary of your project. You can largely copy/paste this from one progress report to the next, unless there are significant changes.)

My plan is to create an Apple game for daily trivia. The app will draw from a MySQL database of trivia questions and multiple choice answers. When the app opens there is a login and create account screen. After logging in there is an onboarding screen that has slides that list the game's summary and general instructions. After clicking next past all of the slides the screen changes and there is an interface with easy, medium, and hard modes. Each player will be able to play one question for each mode each day. Once the user presses the mode of the question they will be able to click a start button. A timer will start after the button is clicked and the screen will display the question with four multiple choice answers. The timer can be paused but the trivia question is blocked from view if the game is stopped. At the end whether or not you answered correctly and your time will be displayed in a pop-up. There will be a separate tab on the app containing a table of each user's career stats, line graphs/trend lines and bar plots showing progress over time

2. **Summary of Progress this Period** (Provide a high-level, one paragraph overview of what was accomplished this progress period collectively by the team.)

Unlike the previous few weeks, I made a lot more progress than I had originally planned. Even though I missed $\frac{1}{3}$ days of school. I started by importing the CSV files for each of the different trivia difficulties. I had to create my own dataframe model since there is no premade function. This made it easier to import my CSV in a column and row format. After importing the CSVs, I moved on to assigning values using indexing in the easy dataframe to certain objects in the EasyGameViewController. I got the category to appear on the top of the view while the question and answer buttons appear below. Then, using randomizers I was able to randomly select a row and display its values. By uncommenting a line of code I wrote, I can make it so that the randomizer won't select the same row twice. I also put the indexes of the four answers into a list and shuffled it so the answer buttons would be randomized. The last thing I worked on was the logic. I made it so that if the answer you selected was correct it would print out "Correct!", and if not, the function printed "Incorrect!"

3. **Detailed Progress this Period, separated by Team Member** (Provide detailed information on the progress that you made in the reporting weeks. Include screenshots of code, your game or website, etc. Each team member should have a separate subsection covering their accomplishments. Not including screenshots, this section should be 1-2 pages.)

```

1 category*difficulty*question*correctAnswer*incorrect1*incorrect2*incorrect3
2 The Arts*Easy*In Edward Lear's poem, which bird sang to the pussycat?*The Owl*The Robin*The Swan*The Albatross
3 The Arts*Easy*Which author wrote 'Harry Potter and the Philosopher's Stone'?*J. K. Rowling*Christopher Tolkien*Philip Pullman*C. S. Lewis
4 The Arts*Easy*In which book series does Frodo Baggins appear?*The Lord of the Rings*Harry Potter*Red Rising*The Hunger Games
5 The Arts*Easy*Which author wrote 'The History of Middle-Earth'?*J. R. R. Tolkien*G. K. Chesterton*Philip Pullman*C. S. Lewis
6 The Arts*Easy*Who is the American artist who uses Campbell's Soup cans in his pop art?*Andy Warhol *Jackson Pollock*Gertrude Stein*Aaron Copland
7 The Arts*Easy*In which book is Bilbo Baggins the main character?*The Hobbit*Charlottes Web*Alices Adventures in Wonderland*Bluebeard
8 The Arts*Easy*In E.B. White's classic children's book 'Charlotte's Web', what kind of animal is Charlotte?*A Spider*A Pig*A Sheep*A Horse
9 The Arts*Easy*Which author wrote 'The Hobbit'?*J. R. R. Tolkien*G. K. Chesterton*Philip Pullman*C. S. Lewis
10 The Arts*Easy*Which author wrote 'A Midsummer Night's Dream'?*William Shakespeare*Arthur C. Clarke*Isaac Newton*Enid Blyton
11 The Arts*Easy*Which author wrote 'Harry Potter and the Deathly Hallows'?*J. K. Rowling*Christopher Tolkien*Philip Pullman*C. S. Lewis
12 The Arts*Easy*Which piece of written work starts with the line 'Lolita, light of my life, fire of my loins.'?*Lolita*Les Liaisons dangereuses*And
    Then There Were None*Ulysses
13 The Arts*Easy*Which author wrote 'The Origin of Species'?*Charles Darwin*Percy Bysshe Shelley*H. Rider Haggard*Robert Louis Stevenson
14 The Arts*Easy*What is the word for a composition made of cut and pasted pieces of materials?*Collage*Watercolor*Sculpture*Pointilism
15 The Arts*Easy*Who wrote A Christmas Carol'?*Charles Dickens*Thomas Hardy*James Joyce*Emily Brontë
16 The Arts*Easy*Which piece of written work starts with the line 'In a hole in the ground there lived a hobbit.'?*The Hobbit*Charlottes Web*Alices
    Adventures in Wonderland*Bluebeard
17 The Arts*Easy*In which book series does Prince Caspian appear?*The Chronicles of Narnia*Voyages Extraordinaires*Harry Potter*Percy Jackson & the
    Olympians
18 The Arts*Easy*In which book series does Thalia Grace appear?*Percy Jackson & the Olympians*Twilight*Voyages Extraordinaires*Harry Potter
19 The Arts*Easy*Who said 'But, soft! what light through yonder window breaks'?*Romeo*Juliet*Hamlet*Paris
20 The Arts*Easy*What word describes a painting executed in a single color?*Monochrome*Magenta*Unicolor*Solo hue
21 The Arts*Easy*In which book series does Lord Voldemort appear?*Harry Potter*The Lord of the Rings*The Inheritance Series*The Hunger Games

```

Above is the new look of the csv file I imported

```

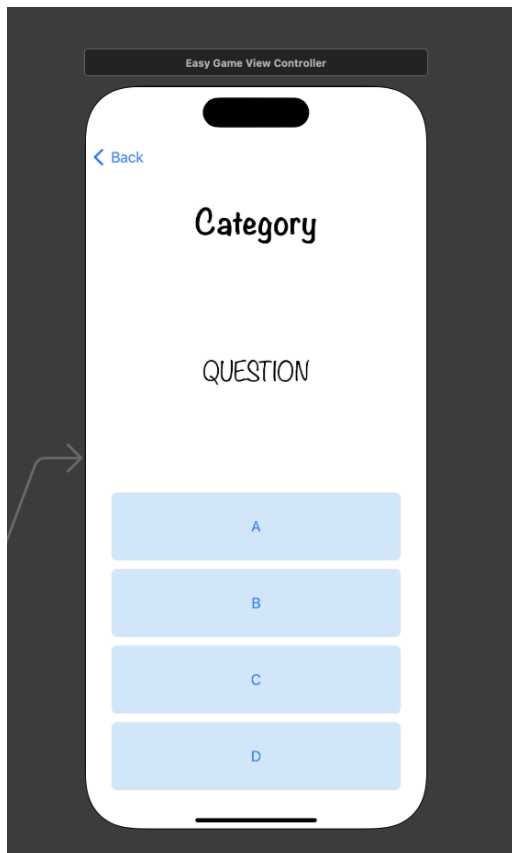
8 import UIKit
9
10 struct triviaScreen {
11     let category: String
12     let question: String
13     let answer1: String
14     let answer2: String
15     let answer3: String
16     let answer4: String
17 }

```

To the left is the code creating an object array to store the values of each of the needed variables

```
8 import UIKit
9
10 struct DataFrame {
11     var columns: [String]
12     var rows: [[String]]
13
14     init(fromCSVFile fileName: String) {
15         guard let url = Bundle.main.url(forResource: fileName, withExtension: "csv"),
16               let csvData = try? String(contentsOf: url) else {
17             self.columns = []
18             self.rows = []
19             return
20         }
21
22         let lines = csvData.components(separatedBy: .newlines)
23
24         if let headerLine = lines.first {
25             self.columns = headerLine.components(separatedBy: ",")
26         } else {
27             self.columns = []
28         }
29
30         self.rows = lines.dropFirst().compactMap { line in
31             let columns = line.components(separatedBy: ",")
32             return columns.count > 1 && !columns.allSatisfy { $0.isEmpty } ? columns : nil
33         }
34     }
35 }
```

Above is model for splitting the csv into a data frame



The view controller to the left is the base look of the EasyGameViewController

```

10 class EasyGameViewController: UIViewController {
11     @IBOutlet weak var questionText: UILabel!
12     @IBOutlet weak var categoryLabel: UILabel!
13     @IBOutlet weak var titleAnswer1: UIButton!
14     @IBOutlet weak var titleAnswer2: UIButton!
15     @IBOutlet weak var titleAnswer3: UIButton!
16     @IBOutlet weak var titleAnswer4: UIButton!
17
18     private var dataframe: DataFrame?
19     private var correctAnswer: String?
20
21     private var trivia: [triviaScreen] = []
22
23     private var usedIndexes: Set<Int> {
24         get {
25             if let storedIndexes = UserDefaults.standard.object(forKey: "usedIndexes") as? [Int] {
26                 return Set(storedIndexes)
27             } else {
28                 return []
29             }
30         }
31         set {
32             UserDefaults.standard.set(Array(newValue), forKey: "usedIndexes")
33         }
34     }
35
36     override func viewDidLoad() {
37         super.viewDidLoad()
38
39         loadDataFrameFromCSV()
40         displayRandomTrivia()
41     }
42
43     func loadDataFrameFromCSV() {
44         dataframe = DataFrame(fromCSVFile: "trivia_mc - Easy")
45         if let dataframe = dataframe {
46             print(dataframe.columns)
47         }
48     }
49
50     func displayRandomTrivia() {
51         let numberOfRows = dataframe?.rows.count ?? 0
52         var availableIndexes = Array(0..

```

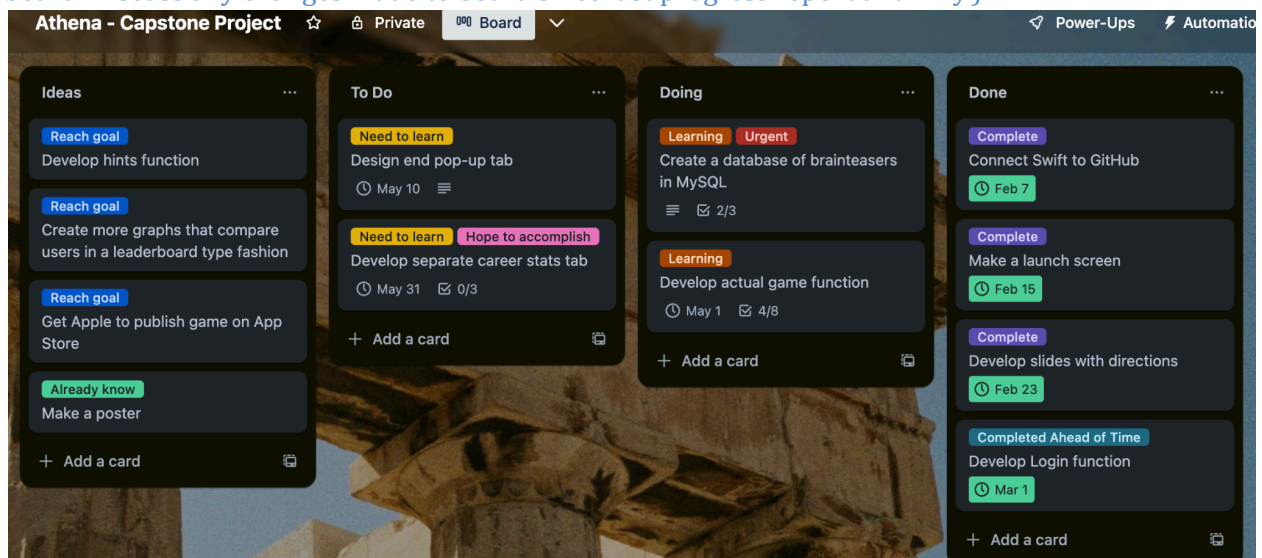
Above is the entire code for the EasyGameViewController

I attached the screen recording to the classroom showing the entire swift code output.

4. **Difficulties Encountered this Progress Period** (Provide detailed information on the difficulties and issues that you encountered in the reporting weeks. Discuss mitigation strategies for how you got around or plan to get around these issues.)

Over the last few weeks the biggest issue was creating the DataFrame model and importing the CSV properly. I spent a couple days researching the best way to import a CSV to swift over spring break but I never actually got any models working. That is when I asked claude.ai to make it so I could import a CSV as a dataframe in swift. Claude created the original model that I modified slightly for my needs. For example Claude's generated model code did not allow backslashes to negate the effects of separation. Any comma that I had made "\," still separated at the comma. To fix this I made the separator an asterisk—a value I knew was not randomly in a question or answer—and made all the "\," back into just commas. I guess I made the CSV an asterisk separated file rather than a comma separated file. After running the code with these small tweaks to Claude AI's initial design the CSVs imported perfectly.

5. **Updated Trello Board and Discussion** (Provide screenshot of and link to updated Trello board. Discuss any changes made to board since last progress report and why.)



<https://trello.com/b/lDYqXQeq/athena-capstone-project>

6. **Tasks to Be Worked on in Next Progress Period** (Discuss the tasks to be worked on in the following two weeks. Discuss who is working on each.)

I will start to develop the timer and pause button functions. If I finish with those I will continue by trying to make it so the question will change once per day.

7. **Additional Information** (Provide any additional information that you want to provide in this section; for example, one of your teammates is going away next week, your Github account is gone, etc. It could be good news as well.)