That's Life! mirrors life events of people from going to college, having a career, raising a family, investing, buying a house, working, and retiring.

The goal of this game is for the players to reach retirement as early as possible with the most savings on hand.

The player decides what kind of life he wants to experience during the game. At the start of each round, the player press for a randomly generated number [1-10]. This determines the number of spaces he will advance on the board.

Unlike the usual board games, where there is only one path from start to end, **That's Life!**, at some areas along the way, present players with two options: to continue moving forward, or to take a shorter (or maybe longer) route to reach another space on the board.

Getting Started

The game can be played by 2 or 3 players. Each player is given an initial cash of $200000. Each decides either to start a Career, or to start College. Afterwards, players take turns in pressing for a random number to determine the number of spaces to advance on the board.

Start a Career If a player chooses to start a career, he takes the **Career Path** on the board.

He takes one **Career Card**, and one Salary Card. If the Career Card indicates "*degree required*", he returns the card and takes the next one.

The Career and Salary cards drawn are shown, and will be the player's current career and salary.

Start College If a player chooses to start college, he takes the **College Path** on the board. He borrows $40,000 from the bank.

Life Paths

Career Path Along this path, there are Orange Spaces and one Get Married space.

College Path Along this path, there are Orange Spaces, one Graduation Space, and a College Career Choice.

- **Career Path** and **College Path** meet at some point on the board.

When the player reaches a junction, the player stops even if there are moves left. The player must choose to either continue to move forward, or the other path in that junction.

Change Career Path Along this path are Career Choice, at least one Pay Day, Pay Raise, a Blue Space, and at least one Orange Space.

Start a Family Path This path includes: Get Married, Buy a House, Have Baby or Have Twins, a Blue Space, and at least one Orange Space.

Colored Spaces

Spaces on the board are colored.

Orange Spaces Most spaces are orange. Whenever a player lands on this space, he picks an **Action Card**, and execute what is indicated on the card.

Blue Spaces Whenever a player lands here, either he collects money from the bank, or pays a player or the bank. The player picks a **Blue Card**.

Green Spaces These green spaces are either Pay Day, or Pay Raise.

Whenever a player lands on Pay Day, he collects his current salary from the Bank.

Whenever a player lands on Pay Raise, his salary increases by the amount indicated. He will have this as new salary if it does not exceed the maximum salary he can have. Collect salary from the Bank. If he got a raise, his Tax Due is increased by $2000.

Magenta Spaces Whenever a player reaches these spaces, **STOP!**, even if there are moves left. Follow the instructions on the board, then press for a number and move again. These spaces contain life choices the player should make:

- **College Career Choice** This is in the **College Path**. Top two cards from the **Career Card** deck and **Salary Card** deck are presented to the player. These cards show the career, salary, maximum salary, and taxes due. The player chooses one of each, and returns the other ones to the decks.
- **Job Search** The player gets a card from the **Career Card** deck and **Salary Card** deck. The player decides if he wants to retain his current career and salary, or change them. If he chooses a new career, he loses all his pay raises. He keeps the cards of his choice, and returns the other cards to their respective decks.
- **Buy a House** When a player lands here, he selects the house he intends to buy from the **House Card**s. If the player is short of cash, he must borrow from the bank.
- **Get Married** The player presses a number for his wedding gift. If the generated number is odd, he takes $5000 from each player, or $10000 is the generated number is even.
  A married player cannot be married again. When a married player lands on a **Get Married** space, nothing happens.
- **Have Baby** **or** **Have Twins** When a player lands on these spaces, collect $5000 gift for each child from each player.
  Unmarried player cannot have children. If an unmarried player lands on this space, nothing happens.
- **Which path?** This is the junction where the player will have to choose: continue current path or take **Change Career Path**. Another junction is for the **Start a Family Path**.

Card Decks

Career Card Each career card contains the career, degree required or not, and maximum number of pay raises. There are 7 careers. The range for the maximum number of pay raises are indicated beside each career.

Lawyer Maximum number of pay raises is [5, 8].

Accountant Maximum number of pay raises is [4, 7].

Computer Consultant Maximum number of pay raises is [3, 7].

Doctor Maximum number of pay raises is [5, 8].

Server Maximum number of pay raises is [1, 4].

Racecar Driver Maximum number of pay raises is [2, 8].

Athlete Maximum number of pay raises is [1, 6].

The first four careers requires a college degree. Maximum number of pay raises are randomly generated at the start of each game.

Salary Card Each salary card contains the salary, and tax due. There should be at least 10 salary cards with varying salary amounts. The salary amount are multiples of $10000, and tax due are multiples of $1000. The values in each card are randomly generated at the start of each game.

Blue Card This deck has 7 cards: Lawsuit, Salary Tax Due, Ski Accident, Computer Repair, World Cup, F1 Race, Tip the Server.

Each **Blue Card** is matched with a career. If the picked card matches the player's current career, he collects $15000 from the bank. Otherwise, he pays the player with that career, or if no player has that career, he pays the Bank.

- **Lawsuit** The player pays the amount indicated on the card. The amount is a multiple of $10000 and [$50000, $150000]. The amount is randomly generated and fixed at the start of every game.
- **Salary Tax Due** The player pays the tax due for on his current salary.
- **Tip the Server** The player presses for a random number. He pays generated number $\times 1000$.
- **Ski Accident** The player pays $10000.
- **Computer Repair** The player presses for a random number. He pays $5000 if the number is even, and $10000 if the number is odd.
- **World Cup** The player pays number of players $\times 5000$.
- **F1 Race** The player pays 10% of his current salary.

Action Card The player picks an **Action Card** whenever he ends up on an **Orange Space**. Action cards are cards that either asks the user to pay to, or collect money from another player or Bank.

Action Card deck has 50 cards, generated and shuffled at the start of each game.

Collect from the Bank 40% of the deck, includes Tax refund, Sell an item, Bonus payday, Setup school, Write a book,

Pay the Bank 40% of the deck, includes Buy an item, Visit a place, Hiking, Watch a show, Win a competition, Traffic violation

Pay the Player 10% of the deck, includes Lawsuit (choose a player), Christmas Bonus (pay all players)

Collect from Player 10% of the deck, includes File a lawsuit (choose a player), It's your Birthday (collect from all players)

When all cards in the deck have been used, the used cards are reshuffle and put back in the deck.

Bank Loans

Players borrow money from the bank when they do not have enough cash on hand. The bank loan is worth $20000 each. Each bank loans shall be paid with $5000 interest.

Players may pay his loan before the start of his turn. Each payment is a multiple of $25000.

Retirement

At the end of the spaces is the Retirement. When a player reaches this space, STOP!, even if there are moves left.

1. Collect retirement pay from the Bank. The first player to reach retirement collects $100000; second player collects $50000; and third player collects $20000.
2. Collect $10000 for each child he has from the bank.
3. Sell your house to the Bank for the amount listed on the card
4. Repay to the Bank, all outstanding loans with interest.

Deliverables for each Phase

1. UML class diagram
2. Java source files of implemented classes, including the internal documentation
3. Meaningful program documentation generated via Javadoc
4. Test scripts.

Phase 1 Requirements: Due: Aug 31, 2020 0730

1. Draw the UML class diagram to represent the system described.
2. Implement only the Action Card generation and shuffle. Players take turns in getting the topmost card, and whatever is on the card applies to the player. Provide a method to show all the generated Action Cards. The career of each player is assigned for now.
3. Phase 1 implementation requires all displays to be on the console (no GUI).

Phase 2 requirements: Due: Sep 22, 2020 2359

1. You must follow the MVC architecture.
2. Your final system is a GUI-based program. All interactions will be on the GUI. Console outputs will not be checked.
3. Complete UML class diagram for Model.
4. Diagram of classes (all implemented classes with no attributes and behaviors) to show relationships for the entire system.
5. Phase 2 implementation requires GUI.
6. Additional features can be implemented by the programmer. However, these should not contradict the requirement. Whatever implemented additional features should be reflected in the UML class diagram too.

Important!

1. This project is at most done in **groups of 2**. However, a student may choose to work alone. A student must not discuss or ask about design or implementation with other students or another groups, except his/her groupmate.

   Copying other people's work and/or working in collaboration with other groups are not allowed. These acts are punishable by a grade of 0.0 for the entire CCPROG3 course, and a case may be filed against all involved students with the Discipline Office.

2. If you have questions, please post your questions in the Discussion item for MP in AnimoSpace.

3. For the minimum requirements of this MP, all the requirements written in this document should be present and working.

4. Do not forget to include internal documentation (comments) in your code.

5. You are required to create and use methods and classes whenever possible. Make sure to use Object-Based and Object-Oriented Programing concepts properly. No brute force solution.

6. Submission of the project for each phase was announced during first day of classes, and indicated also in the Syllabus. Late submission, as indicated by AnimoSpace, will not be accepted, and will therefore result to 0 for that phase.

7. The students are responsible in submitting in the Canvas assignment submission page the correct version. Only the last uploaded version by the deadline will be used as basis for assessment. As part of the requirement, the proponent/s should make pertinent back-ups of his/her/their own project.

8. During the MP demo, it is expected that the program can successfully be interpreted into bytecode file and will run. If the program does not run, the grade for that phase is 0. However, a running program with complete features may not necessarily get full credit, as implementation (i.e., code) will still be checked.

9. During the demo, all members of the group should be present. The group should know how to generate the bytecode file and to run the said file in the command prompt. Apart from question-answer, there is an Individual Programming Task that will be given to each member. Each will have to work on and finish the given task during the demo period.

10. A student or a group who cannot answer questions regarding the design and implementation of the submitted project convincingly will incur a grade of 0 for that project phase.

11. All sources should have proper citations. Citations should be written using the APA format. Examples of APA-formatted citations can be seen in the References section of the syllabus.