Weekly breakdown - Week 1

Weekly objective: Student will understand the basics of interaction design, flowcharts, Unity interface, and scripting.

In-class
Goals:
Student will be able to

- Function within class organization and workflows.
- Understand how to deliver the sprint project deliverables
- Understand how the weekly assignments build up to the sprint deliverables
- Use google drive, docs, sheets and drawings
- Understand the basics of interaction design principles
- Apply interaction design principles to user experience flowcharting

Lecture:
Introduction to class

- 1st day organization (grading policy, attendance, exams,etc.)
- Show the sprint 1 project sample with flow chart, project description, and Itch.io build
- https://ericnersesian.itch.io/intro-3d-dev-sprint01

Activity: "Draw me an animal"
This activity is meant to set up students for reflective conversation on user experience.
Ask the students to open MS Paint (or similar, stock tool). Then ask students to draw a picture of their favorite animal and export it in a specific format. This activity should not take more than approximately 3 minutes. At this point you can hold a class discussion on user experience. The main idea you are trying to impress upon your students is that a seemingly basic activity has dozens requires a user to make dozens of decisions. This also means that there are multiple possible points at which the experience can breakdown.

Use the following questions to help lead the discussion.

- Which tool did you use to draw?
- Did you use more than one tool?
- Why did you choose the tools you did?
- How did you find the tool you were looking for?
- How long did it take? Was it difficult? Intuitive?
- Were you familiar with the software? How did that shape your experience?
- How did you figure out how to export the file?

After the discussion you might want repeat the activity in front of students. Demonstrate concepts and ideas that the discussion provided. Open MS paint, and play a part of a beginner user unfamiliar with the tool. Demonstrate possible failure points where users can get confused or lost. This should solidify the idea that not all users are equal and that designers/developers are not users. Nothing should be assumed, and every part of the users experience must be thought out.

Lecture:
Introduction to interactive design

- Design concepts
    - What is design?
- User/Player oriented design
    - Who are we designing for?
    - Designers and developers are not users
- Interaction design principles
    - 10 Usability Heuristics for User Interface Design
    - https://www.nngroup.com/articles/ten-usability-heuristics/
    - https://medium.com/@toddohanian/10-usability-heuristics-for-user-interfaces-in-web-design-c179aa39b54e

- Flowcharting an in-game experience
    - How can we easily breakdown the experience?
        - Cue
        - Interaction
        - Feedback
- Diagramming and graphic design
    - Create diagrams in google draw
        - Follow a presented workflow but remember that there is no standard tool for this. There are many different approaches and if this kind of work interests you, feel free to explore them.
    - Export diagrams
- User flows
    - What is the goal or task to be accomplished?
    - What is the starting/entry point?
    - The user flow is not a definitive solution
        - Understanding that software complex enough will have multiple paths to accomplish the same goal
        - There is often room for improvement
    - Testing and improving your user flow
        - Identifying breakpoints
        - Solving problems
        - Peer reviewing
- Input
    - Limitations and affordances of different peripherals and the connection to their respective platforms
        - Mouse

        - Keyboard
        - Touch
        - Controller
        - Gesture
        - Biometrics

Activity:
Create the diagram based on class discussion of drawing app user experience.

Online:
Goals:
Student will be able to

- Function as a user of the Unity platform interface
- Create basic C# scripts for Unity

Lecture Videos:
Introduction to Unity part 1

- Setting up new projects
- Game and Scene view
- Coordinates
    - Screen x and y
    - World x, y, and z
- Editor
- Project folder

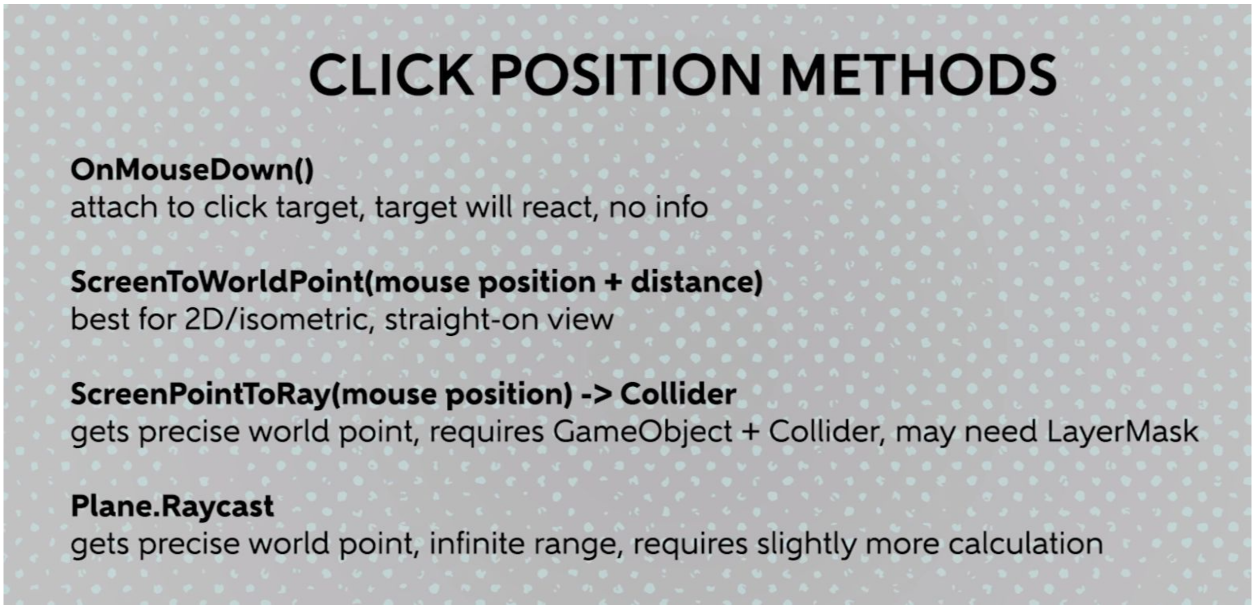
Introduction to Scripting

- Visual studio
- Unity Scripting API Documentation
- Console
- Debugging messages
- Structure of a C# script
    - Class
    - APIs
    - Method
    - Variables

Activity:
Exercise: UnitClick script at start time

- Create a script, and a 3D primitive to click on
    - UnitClick part only
    - Create new project
    - Create script folder
    - Create Sphere in scene

- Create UnitClick script
- Use OnMouseDown method to simplify process
- Use Debug statement for console notifications
- Parameters passed into a method
- Change name of sphere
- Change location of sphere



CLICK POSITION METHODS

OnMouseDown()
attach to click target, target will react, no info

ScreenToWorldPoint(mouse position + distance)
best for 2D/isometric, straight-on view

ScreenPointToRay(mouse position) -> Collider
gets precise world point, requires GameObject + Collider, may need LayerMask

Plane.Raycast
gets precise world point, infinite range, requires slightly more calculation

Describe your sprint project
Diagram your sprint project