

LAB #1

VR AS A MEDIUM AND PLANNING A VR APPLICATION

By the end of this lab, you will be able to:

- Explain how virtual reality (VR) is different from other media.
- Discuss the major differences between mobile and desktop VR headset hardware.
- Outline the features that work well in a VR experience.
- Describe how features that work well in a VR experience differ across common types of VR hardware.
- Create a plan for a VR or AR reality experience.
- List out requirements for hardware, features, and roles to bring a VR or augmented reality (AR) experience together.

PART 1: THE VR ECOSYSTEM TODAY

VR is not a new technology in theory, but practical applications are making their way to the mainstream as consumer devices have begun launching around the world. These devices range from small, cardboard boxes with lenses powered by mobile phones to powerful multi-component peripherals with room-scale tracking.

In today's lab, we'll cover the basics of what VR looks like now, and start looking at what sets the medium apart as a new technological platform. We'll start by looking at the ecosystem of immersive technology as it exists today, and what considerations come into play when working on desktop versus mobile VR applications. We will then look at what goes into creating a VR application and the development stages of an app, how to begin the process of planning an application, and a brief overview of available tooling for creating VR content at the different stages of the process. We will finish up with a series of hands-on brainstorming exercises to help you begin thinking about your own ideas for VR applications.

PART 2: HANDS-ON EXERCISES

These exercises are designed to provide you with the following:

1. The experience of going through the process of thinking through what may or may not work in VR, identify areas of consideration for building VR applications, and understand the limitations of various platforms and how they might relate to your own app.
2. Network with your classmates and feel comfortable by getting practice discussing how to build VR applications in a low-pressure environment.

EXERCISE 1: UNDERSTANDING CONTENT IN VR

In partners or small groups, discuss the different types of VR applications that you've experienced and your thoughts about them.

- What were some of the things that worked really well?
- How did the platform choices change the overall experience?
- What were some of the things that you struggled with?
- How could you change those?

Choose a scribe to capture your ideas and a presenter to present for your group.

EXERCISE 2: WHAT WOULD YOU BUILD?

Make a list of general ideas that you'd like to see in VR. These can be specific or broad, just list out as many as you can think of. Maybe they're completely new ideas or new approaches to some existing applications. Nothing is a wrong answer here. Be creative!

EXERCISE 3: CONTENT PLANNING

Choose the idea on your list that excites you most. It doesn't matter if the idea is a single experience or if you want to build the Oasis from Ready Player One—just pick the one you'd be the most excited to build. Work with your partner or small group to talk about your ideas and hone in on them.

- What makes them unique to VR as a platform?
- Who would you build this app for?
- Would mobile or desktop VR make the most sense for your audience?
- What are the limitations with existing VR hardware that you must consider?
- What features would you add?
- What would be your first step to building it?

PART 3: TAKE-HOME EXERCISES

These take-home exercises provide you with the opportunity to plan how you will realize your ideas for a VR app.

TAKE-HOME EXERCISE #1: PROJECT PLANNING

Think of an application that you'd like to build in VR, or choose an idea below. This can be the idea that you thought of in today's lecture, or it can be something completely unique and different. Imagine that you are getting ready to plan out how to build your application. Break down the VR application into 3–4 milestones that build upon each other that could help you dive deeper into the development process. At this stage, it's completely okay to be informal—make notes of where you have questions about going into more detail. Write as much or as little as you'd like.

Sample Ideas:

- An educational field trip to a foreign planet
- A tour of a rainforest
- VR conferencing platform
- A puzzle game
- A VR “coloring book”
- Training simulators
- 360-degree video shorts
- Data visualization for a smart home device

Example:

Idea: A VR educational field trip to Jupiter

Milestone 1: Gather information about Jupiter and sketch out a draft of the initial experience. Create a paper wireframe experience to envision what the experience will be.

Milestone 2: Develop a low-overhead proof of concept application that captures one of the scenes designed on the wireframe experience—the initial scene where we stand on Jupiter and get information about the planet. Begin to investigate platform-specific dependencies and iterate on the design process to include input, and then decide to create this for mobile phones with Cardboard to help reach more students who are unlikely to afford a desktop VR device.

Milestone 3: Create a first end-to-end “draft” experience of landing on Jupiter, standing on Jupiter, and visualizing facts about Jupiter’s size compared to other planets. Begin getting initial user feedback and working on final designs for planet models and textures.

Milestone 4: Finish application optimization, designs, textures, and test on a few different phones. Release it to the app store!

EXERCISE #2: ROLE GUIDE

Working from your idea in Exercise #1, what are some roles that you must cover while building your app? Will you learn a tool for modeling, design, and developing, or will you purchase assets that work for your app?

Example:

As a developer, I will code the interactions in all of the levels. I have some experience with Blender, so I will probably make all of my own models unless they are significantly complex, in which case I will buy premade assets. I may need to hire someone to optimize my app for Android, if I am running out of time and cannot learn how to do it myself before releasing the app.

SUMMARY

In today's lab, we covered the basics of what VR looks like now, and started looking at what sets the medium apart as a new technological platform. We started by looking at the ecosystem of immersive technology as it exists today, and what considerations come into play when working on desktop versus mobile VR applications. We then looked at what goes into creating a VR application and the development stages of an app, how to begin the process of planning an application. We also had a brief overview of available tooling for creating VR content at the different stages of the process. We finished up with a series of hands-on brainstorming exercises to help you begin thinking about your own types of ideas for VR applications.

FOR NEXT TIME

Bring your completed take-home exercises and be prepared to discuss the process you went through to complete them.