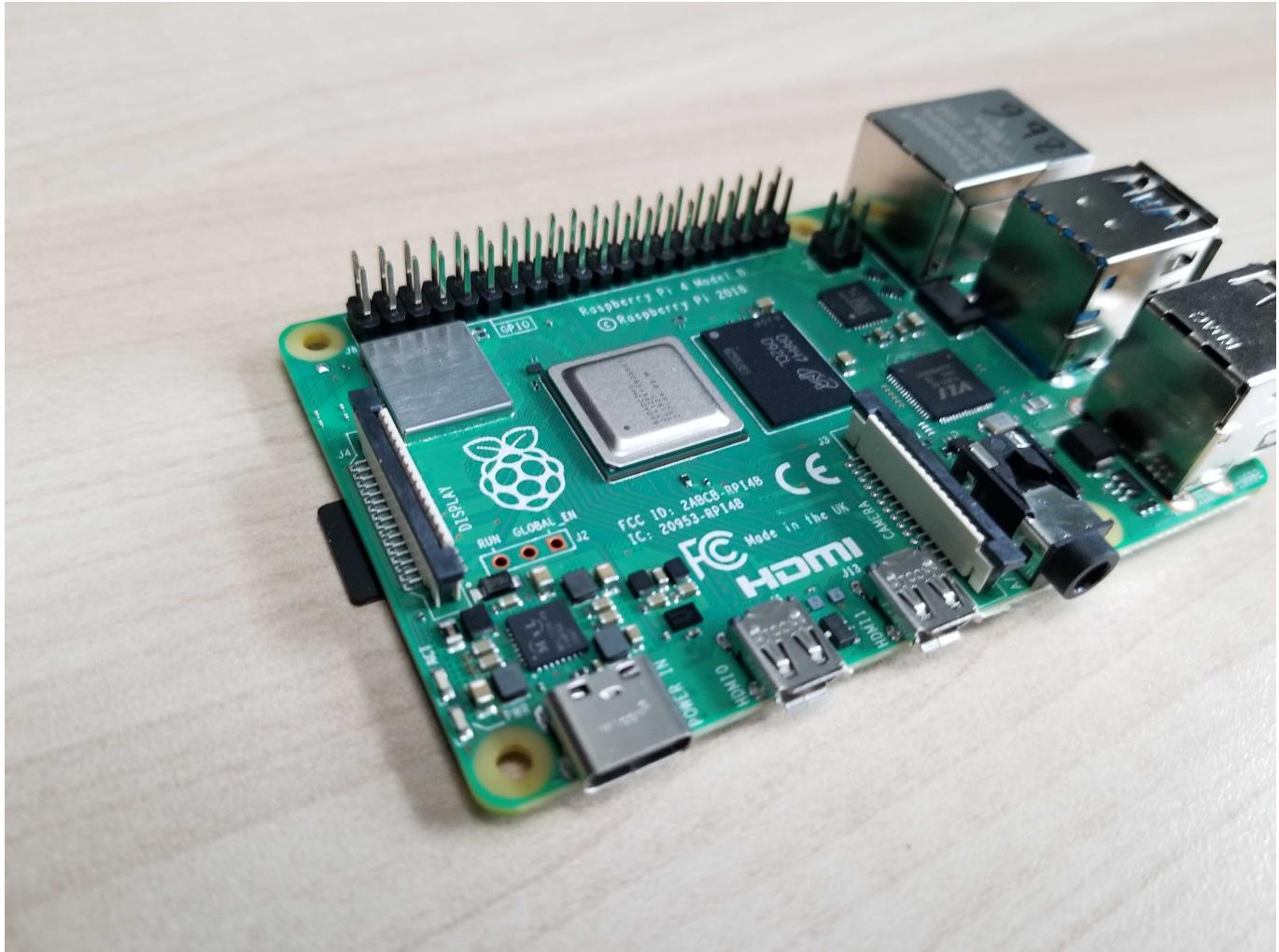


Deliverable 1

What is a Raspberry Pi?

The Raspberry Pi is a small, affordable single-board computer developed in the UK by the Raspberry Pi Foundation. It is widely used for educational purposes, DIY projects, and prototyping.



Raspberry Pi Models

| Model | CPU | RAM Options | USB Ports | Video Output | Release Year |

|-----|-----|-----|-----|-----|-----|

| Raspberry Pi 1 | ARM1176JZF-S (700 MHz) | 256–512 MB | 2 USB 2.0 | HDMI, Composite | 2012 |

| Raspberry Pi 2 | Quad-core Cortex-A7 (900 MHz) | 1 GB | 4 USB 2.0 | HDMI, Composite | 2015 |

| Raspberry Pi 3 | Quad-core Cortex-A53 (1.2 GHz) | 1 GB | 4 USB 2.0 | HDMI | 2016 |

| Raspberry Pi 4 | Quad-core Cortex-A72 (1.5 GHz) | 2–8 GB | 2x USB 2.0, 2x USB 3.0 | 2x micro-HDMI | 2019 |

| Raspberry Pi 5 | Quad-core Cortex-A76 (2.4 GHz) | 4–8 GB | 2x USB 2.0, 2x USB 3.0 | 2x micro-HDMI | 2023 |

Origins of the Raspberry Pi

The Raspberry Pi was developed by the Raspberry Pi Foundation, a UK-based charity, to promote computer science education. The goal was to create an affordable computer for learning and experimentation.

What is Batocera?

Batocera.linux is a Linux-based operating system focused on emulation and retro gaming. It comes pre-configured with a wide variety of emulators and a user-friendly interface.

Website: <https://batocera.org>

Alternatives to Batocera

- **RetroPie** - Based on Raspbian, widely used on Raspberry Pi.
 - **Recalbox** - Similar to Batocera with a strong user community.
 - **Lakka** - Lightweight Linux distro that turns a small computer into a full retro gaming console.
-

What is Emulation?

Emulation refers to mimicking the hardware and software behavior of one system on a different system. Emulators allow modern computers to run software originally designed for other platforms, such as game consoles.

Is Emulation Legal in the U.S.?

Emulation itself is legal in the United States. However, downloading ROMs of games you do not own may violate copyright laws.

Opinion: Emulation should be legal as it preserves digital history and gives access to games no longer commercially available.

More here --> <https://www.mcneelylaw.com/understanding-the-legal-landscape-of-video-game-emulation/>

What is SSH?

SSH (Secure Shell) is a cryptographic network protocol for securely accessing and managing devices remotely over an unsecured network.

SSH Command Examples

```
# Generate SSH key pair  
ssh-keygen
```

```
# Connect to remote server  
  
ssh username@ip-address  
  
# Copy a file to remote server  
  
scp file.txt username@ip-address:/path/to/destination
```

Connect to VM from Windows using SSH

1. Open **Command Prompt** or **PowerShell**.
2. Use the following command:

```
ssh username@VM-IP-Address
```

Replace **username** and **VM-IP-Address** with your VM credentials.

What is an IP Address?

An IP address is a unique identifier for a device on a network.

IPv4

- 32-bit numeric address.
- Example: **192.168.1.1**
- Supports ~4.3 billion devices.

IPv6

- 128-bit hexadecimal address.
 - Example: **2001:0db8:85a3:0000:0000:8a2e:0370:7334**
 - Supports a vastly larger number of devices.
-

What is a ROM? (In the context of gaming)

A ROM (Read-Only Memory) is a digital copy of a video game cartridge or disc. ROMs are used with emulators to play games originally designed for consoles like SNES, Sega Genesis, or PlayStation.