Why Build?

- Have full control over specs/performance
- Easily upgradable and repairability (and more eco-friendly)
- Customizable design and aesthetics
- Learn as you build
- Relatively inexpensive compared to pre-built systems
Selecting Parts

- Do research on each component
- Decide on CPU platform (Ryzen vs. Intel)
- Use online builders (e.g. pcpartpicker.com) to check for compatibility and shopping
Intel vs. AMD

i7 11700k vs. Ryzen 7 5800x

- Similar in many ways
- Intel pros:
  - Slightly faster core speeds
  - Faster turbo boost
  - Includes integrated graphics
- Ryzen pros:
  - Uses a 7-nm process (2x smaller than intel)
  - Slightly faster frame rates in games
- Benchmarks showed very similar results, so I chose Intel mainly because of integrated graphics
Decisions I Made

- Use Intel processor
- Use a liquid cooler for processor
- Hold off on a graphics card
- Use 2 memory channels
Final Part List

- Intel CPU
- Asus motherboard
- G.Skill memory
- Samsung SSD
- Corsair CPU cooler
- SeaSonic power supply
- Lian Li case
- Corsair fans

Link: https://pcpartpicker.com/user/Stormtorch/saved/B9PTYJ

Price: ~$1550 (always changes)
Motherboard Assembly

- Install CPU, RAM, SSD
- Install retention for CPU cooler
- Mount to case
Cooling Installation

- Mount radiator next to motherboard
- Mount pump on top of CPU using retention
- Mount fans on radiator
- Mount fans on top of case
Cables and Power

- Mount power supply in back
- Connect power supply to components
- Connect fan hub to fans/pump/power
- Attach wifi antenna
- Organize cables
Boot-up

- Plug in all devices to I/O on motherboard
  - Keyboard
  - Mouse
  - Monitor
- Turn on power supply
- Wait for BIOS screen and check for errors
Software Installation

- Plug in a flash drive w/ OS
- Activate Windows
- Install Wi-Fi drivers from flash drive
- Download + install other drivers from internet
First-time mistakes

- CPU cooler retention
- Pump wire to wrong header
- Managing cables
Final product

- Learned a lot since I first did research
  - Building
    - Look at each component closely
    - See in detail how everything fits together
  - Research
    - Examine details of many brands and parts
    - Compare/contrast models to find the fittest
- Can easily repair/upgrade in future
- More confident in building PC systems