Choose the Right Hardware

Proposal Template

Scenario 1: Manufacturing

Client Requirements and Potential Hardware Solution

Look through the scenario and find any relevant client requirements. Then, suggest a potential hardware type and explain how this hardware would satisfy each of the requirements.

Which hardware might be most appropriate for this scenario? (CPU / IGPU / VPU / FPGA)
[FPGA]

Requirement Observed (Include at least two.)	**How does the chosen hardware meet this requirement?**
Example requirement: The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device.	*Example explanation:* VPU or NCS2 is only about 27.40 mm in size and would fit in the price range.
[The Client required 30 to 35 FPS which process 5 image per second]	*[FPGA offer better speed compared to other device which meet this requirement]*
[it should be reprogrammable and optimized for the new design]	*[FPGA is allowed reprogrammable and optimize in the future event after installation]*
[Good quality which is used 10 to 15 year]	*[FPGA is good quality and durable]*
[There is no restriction in cost and their revenue is good]	*[FPGA is Expansive then other device but it is not an issue here]*

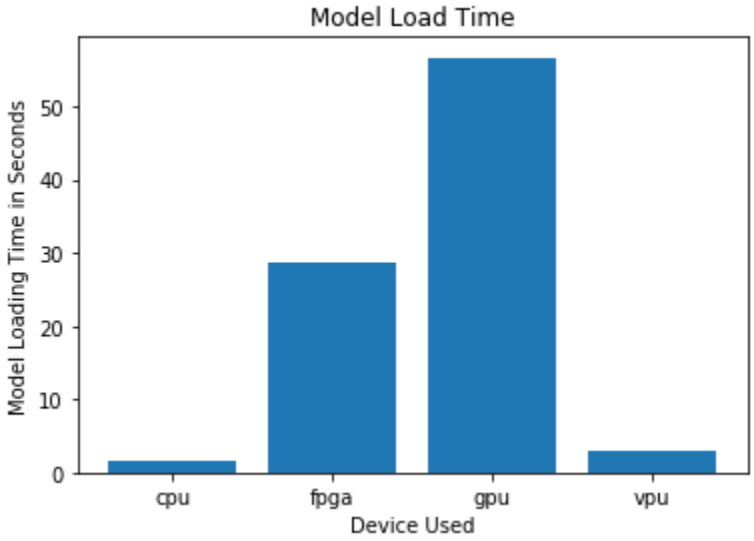
Queue Monitoring Requirements

Maximum number of people in the queue	*[5]*

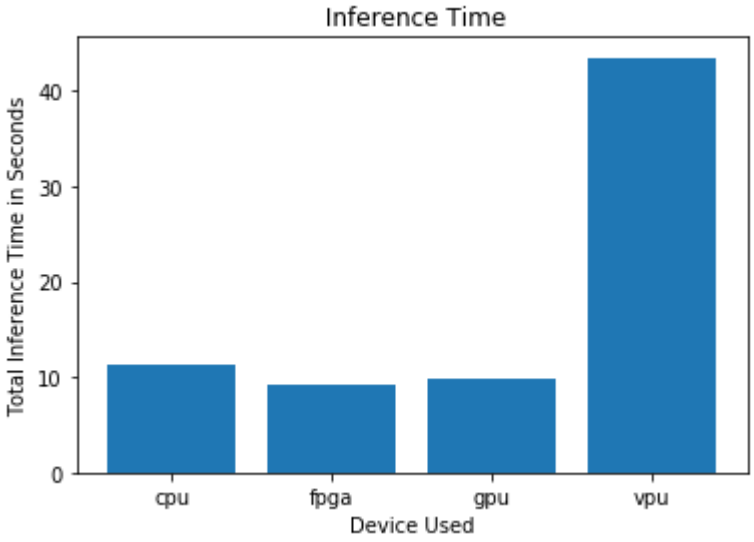
Model precision chosen (FP32, FP16, or Int8)	*[FP16]*

Test Results

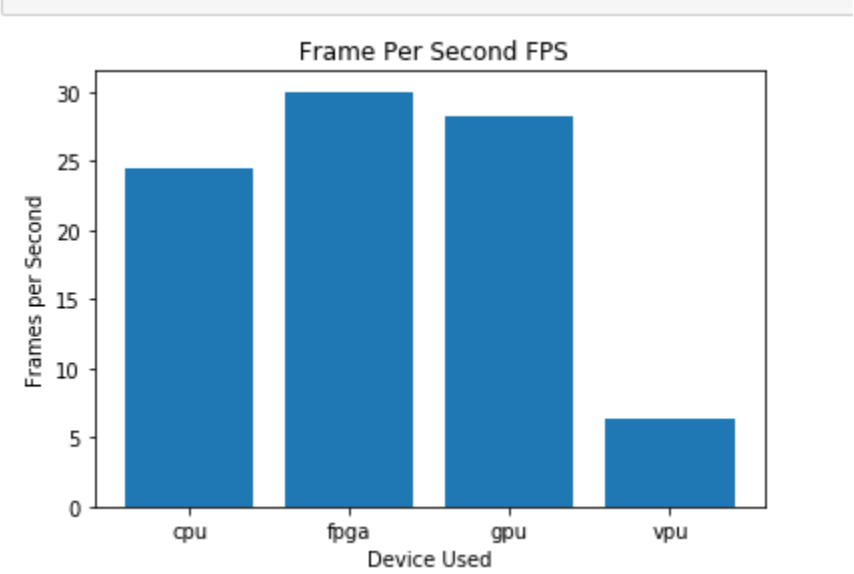
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



Model Load Time



Inference Time



FPS

Final Hardware Recommendation

Now synthesize your points from above and provide a brief write-up describing why the chosen hardware is the best choice for this scenario. Be sure to discuss the client's requirements, the test results, and how these relate to one another (e.g., perhaps one of the devices performed better than the rest, but does not meet one of the client's requirements).

Write-up: Final Hardware Recommendation
[As the noted the above graph, FPGA is Shown the best result in performance . it meet the client required 30 to 35 FPS and is faster than the other device loading the model and inference time as well, so FPGA is still the best choice for this scenario]

Scenario 2: Retail

Client Requirements and Potential Hardware Solution

Look through the scenario and find any relevant client requirements. Then, suggest a potential hardware type and explain how this hardware would satisfy each of the requirements.

Which hardware might be most appropriate for this scenario? (CPU / IGPU / VPU / FPGA)

[IGPU]

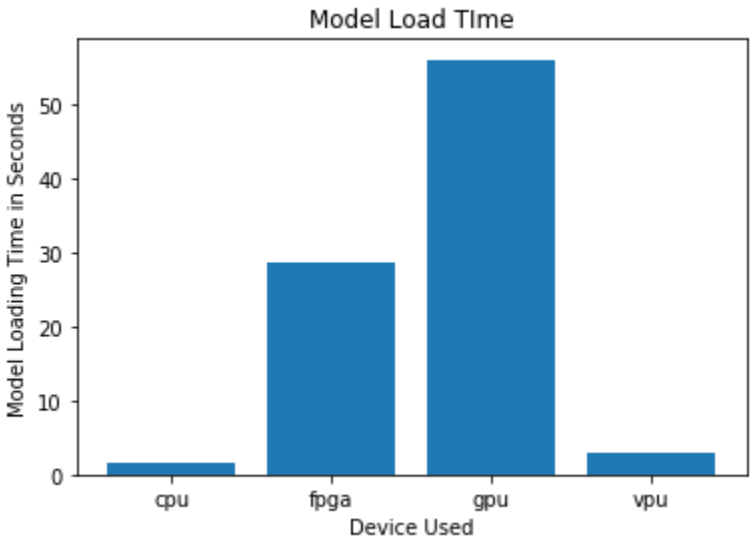
Requirement Observed (Include at least two.)	How does the chosen hardware meet this requirement?
Example requirement: The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device.	*Example explanation:* VPU or NCS2 is only about 27.40 mm in size and would fit in the price range.
[The client does not have much money to invest in additional hardware]	*[Making use of IGPU reduced the investment in additional hardware]*
[To save as much as possible on his electric bill]	*[With the advantage of IGPU configurable power consumption, electric bill could used]*

Queue Monitoring Requirements

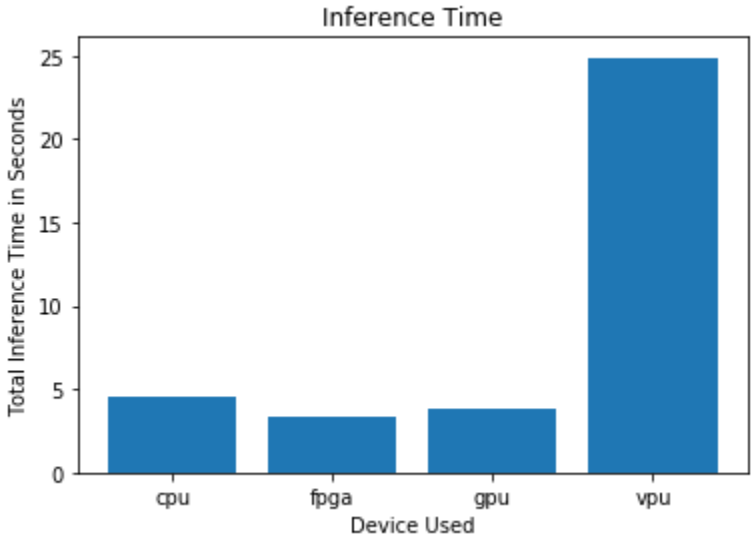
Maximum number of people in the queue	*[5]*
Model precision chosen (FP32, FP16, or Int8)	*[FP16]*

Test Results

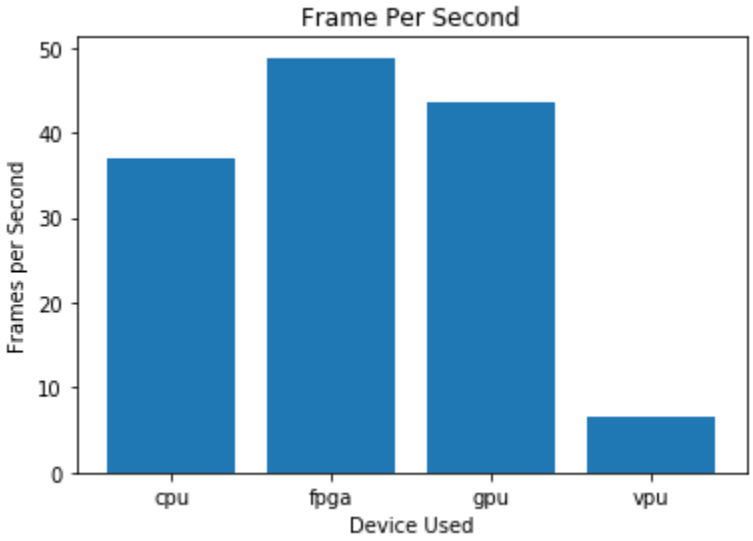
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



Model Load Time



Inference Time



FPS

Final Hardware Recommendation

Now synthesize your points from above and provide a brief write-up describing why the chosen hardware is the best choice for this scenario. Be sure to discuss the client's requirements, the test results, and how these relate to one another (e.g., perhaps one of the devices performed better than the rest, but does not meet one of the client's requirements).

Write-up: Final Hardware Recommendation
[As we can see even though the model loading time is comparatively more than other device, it happen only once during startup time. After that the inference and FPS are better meet the client requirement with their estimate price range. So IGPU is best choice for this scenario]

Scenario 3: Transportation

Client Requirements and Potential Hardware Solution

Look through the scenario and find any relevant client requirements. Then, suggest a potential hardware type and explain how this hardware would satisfy each of the requirements.

Which hardware might be most appropriate for this scenario? (CPU / IGPU / VPU / FPGA)

[VPU]

Requirement Observed (Include at least two.)	How does the chosen hardware meet this requirement?
Example requirement: The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device.	*Example explanation:* VPU or NCS2 is only about 27.40 mm in size and would fit in the price range.
[The Client Budged allows for the maximum of 300 dollar per machine]	*[VPU is only around 100 dollar and would fit in the price range]*
[To save as much as possible both hardware and future power requirement]	*[Since the VPU is typically and usb or similar smaller attachment device, power consumption is comparatively lesser than the other device]*

Queue Monitoring Requirements

Maximum number of people in the queue	*[15]*
Model precision chosen (FP32, FP16, or Int8)	*[FP16]*

Test Results

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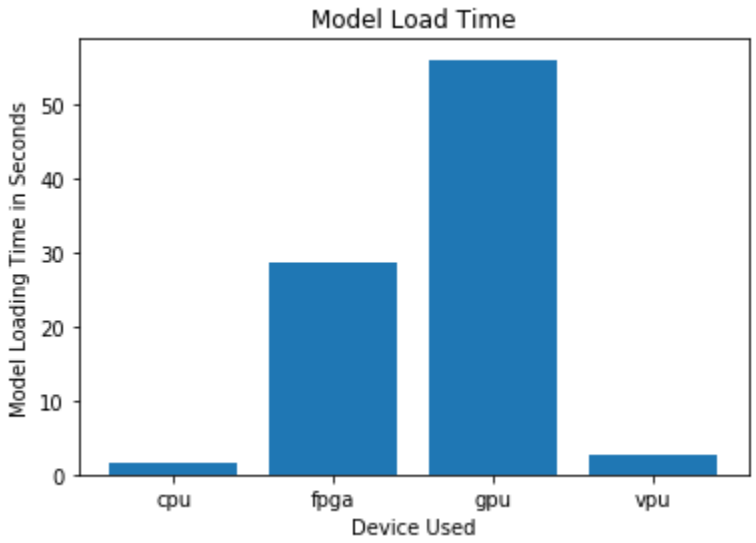
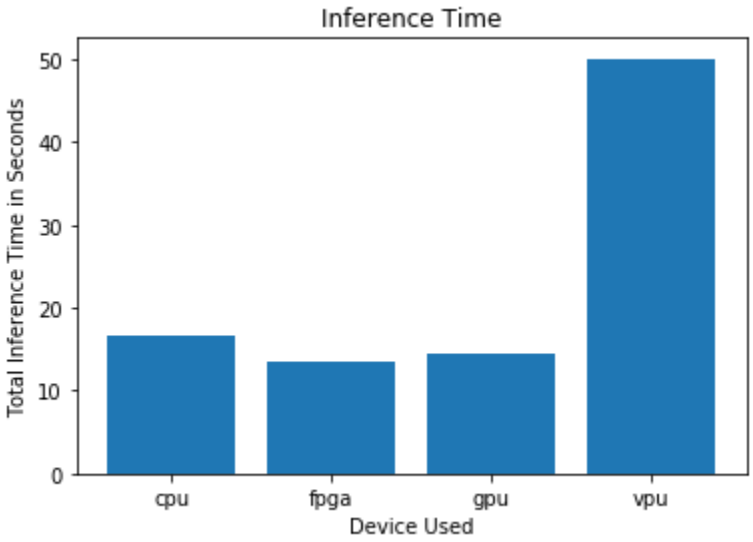
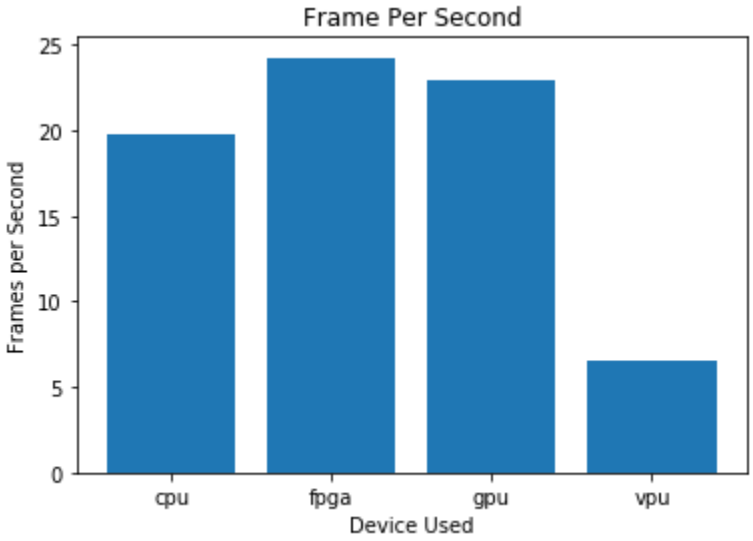


Model Load Time



Inference Time



FPS

Final Hardware Recommendation

Now synthesize your points from above and provide a brief write-up describing why the chosen hardware is the best choice for this scenario. Be sure to discuss the client's requirements, the test results, and how these relate to one another (e.g., perhaps one of the devices performed better than the rest, but does not meet one of the client's requirements).

Write-up: Final Hardware Recommendation
[Even though the inference time and FPS are comparatively lesser than other device . it would sill able meet the requirement of the client to handle 7 to 15 people in queue without spending much on the new hardware for each computer . so VPU is best choice for this scenario]