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 haor this srdware might be most appropriate fcenario? (CPU / IGPU / VPU / FPGA)
FPGA

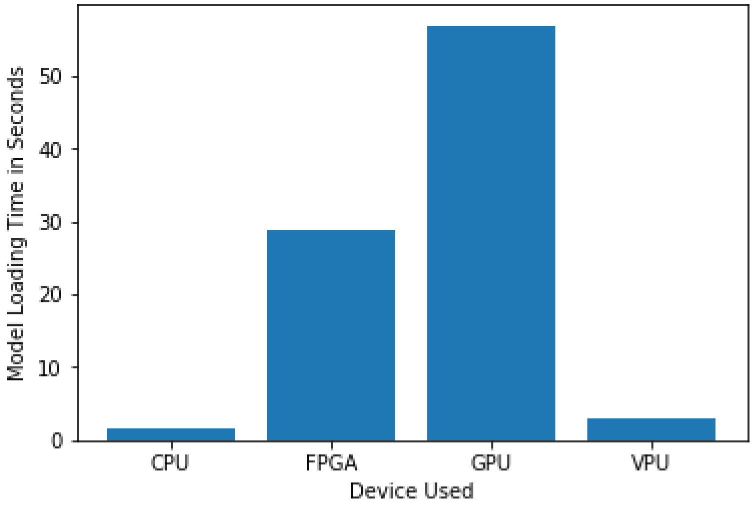
Requirement Observed (Include at least two.)	**How does the chosen hardware meet this requirement?**
The Client requires the installed system to last 5-10 years.	FPGA has a guaranteed long lifespan of ~10 years.
The client has plenty of revenue to install a quality system and wants to run it for 24 hours	*FPGA can be affordable by the client and it can run 24 hours continuously.*
The client want Inference to run quickly tp process the image faster	*FPGA has lower Inference time as compared to others(<10s)..*
The Client wants a flexible system that can be reprogrammed and optimized.	*FPGA is very flexible and hence fulfills the requirement.*

Queue Monitoring Requirements

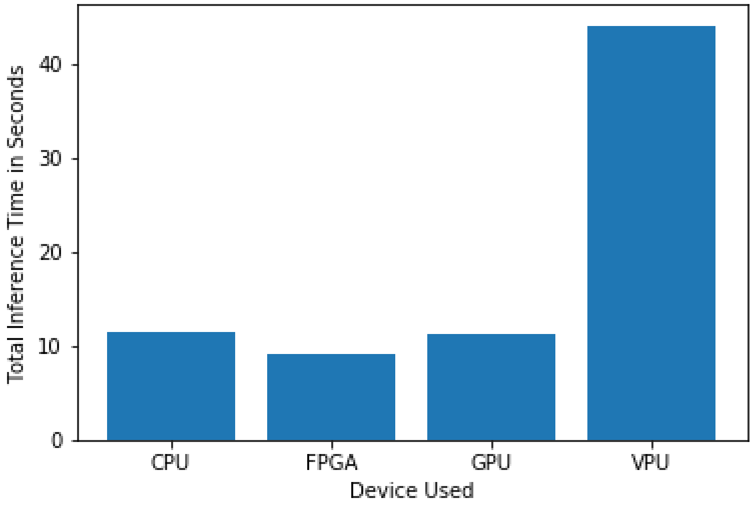
Maximum number of people in the queue	*5*
Model precision chosen (FP32, FP16, or Int8)	*FP16*

Test Results

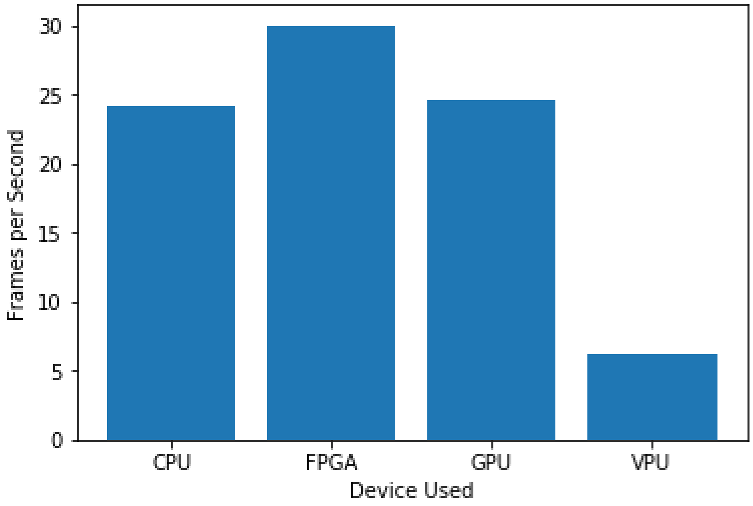
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



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
I have chosen FPGA as it has low inference time(as compared to others), high frames per second for high performance. The client can afford it and it has a lifespan of 10 years as required by the client. The client also wants a flexible system that can be reprogrammed, So FPGA is a solution for that.

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)**
CPU

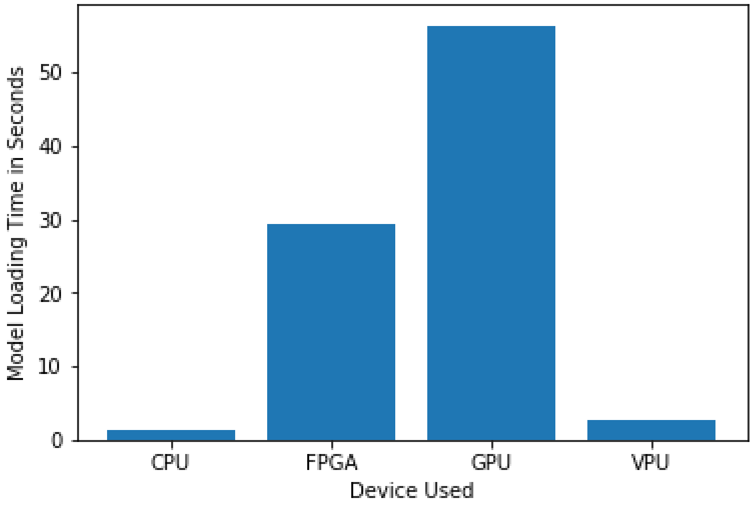
Requirement Observed (Include at least two.)	**How does the chosen hardware meet this requirement?**
The client doesn't want to invest in additional hardwares.	*Client already have Intel i7 processors at checkouts that can be used.*
The client want to save as much as possible in electric- bill	*Intel i7 is power efficient.*

Queue Monitoring Requirements

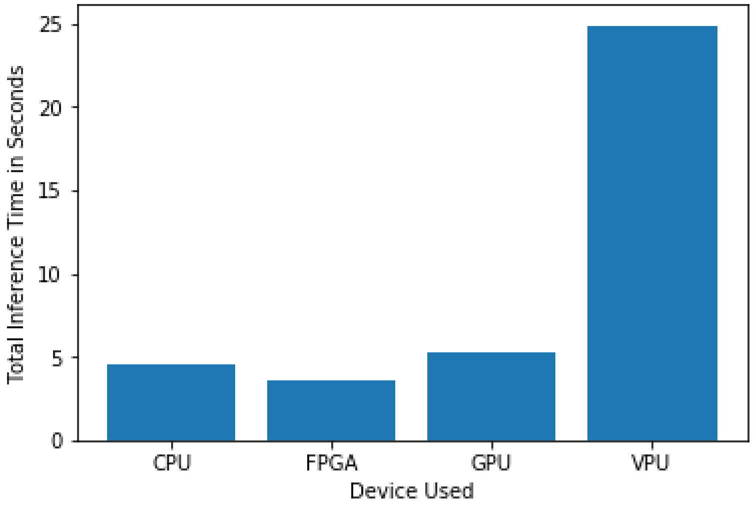
Maximum number of people in the queue	*5*
Model precision chosen (FP32, FP16, or Int8)	*FP32*

Test Results

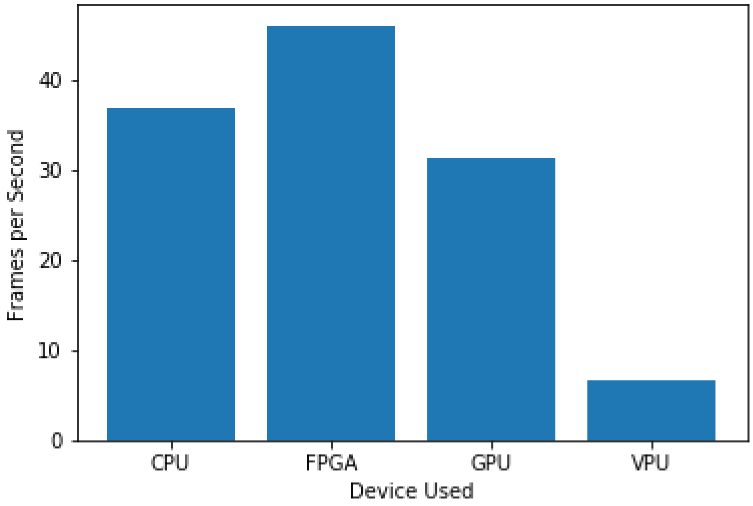
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



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
I have chosen CPU because the client doesn't want to invest in additional hardwares and wants to save on electric- bill. Since i7 is power efficient and he already has it installed in computers. Cpu has 35 FPS, lowest model loading time and 5s inference time.

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?**

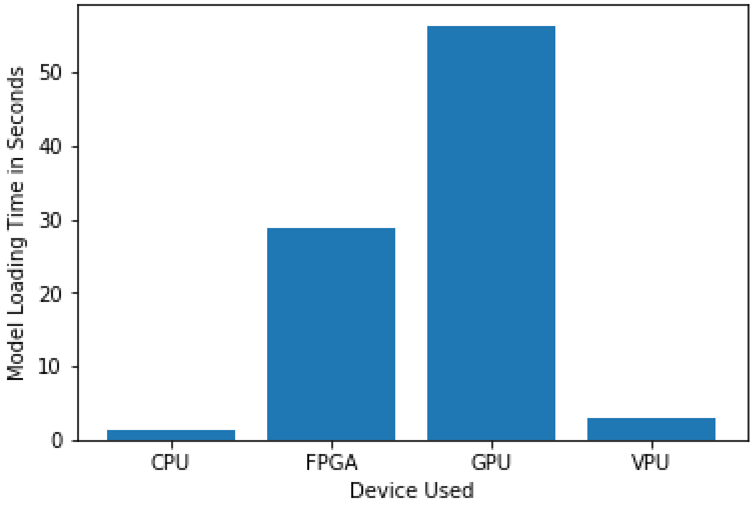
The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device.	VPU or NCS2 is only about 27.40 mm in size and would fit in the price range.
The client wants a power- efficient device.	VPU is very power efficient ~1W.
The client has an All-in-one pc.	NCS2 supports USB plug and play so it can easily be connected with the client's All-in-one pc.

Queue Monitoring Requirements

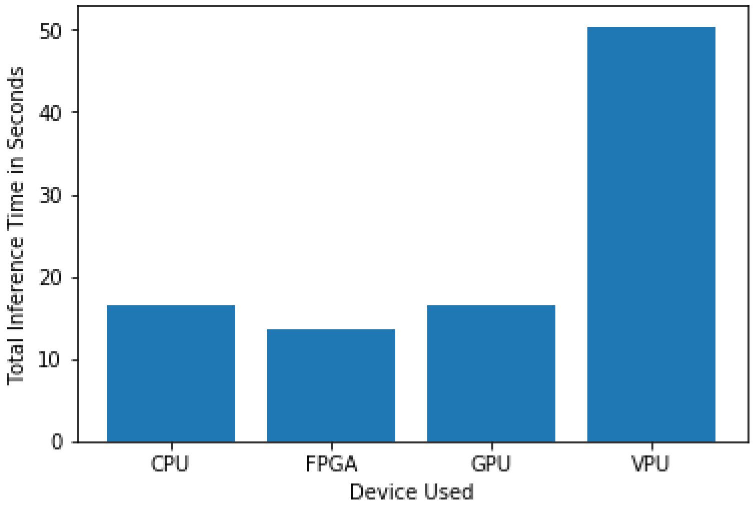
Maximum number of people in the queue	*15*
Model precision chosen (FP32, FP16, or Int8)	*FP16*

Test Results

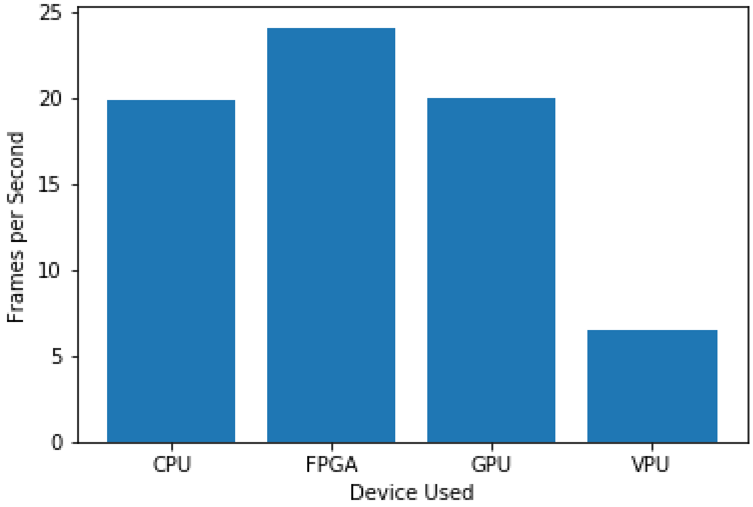
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



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
I have chosen VPU because it is very power efficient and client have all-in-one PCs, So NCS2 can easily be installed. It has low model loading time and <10 FPS.