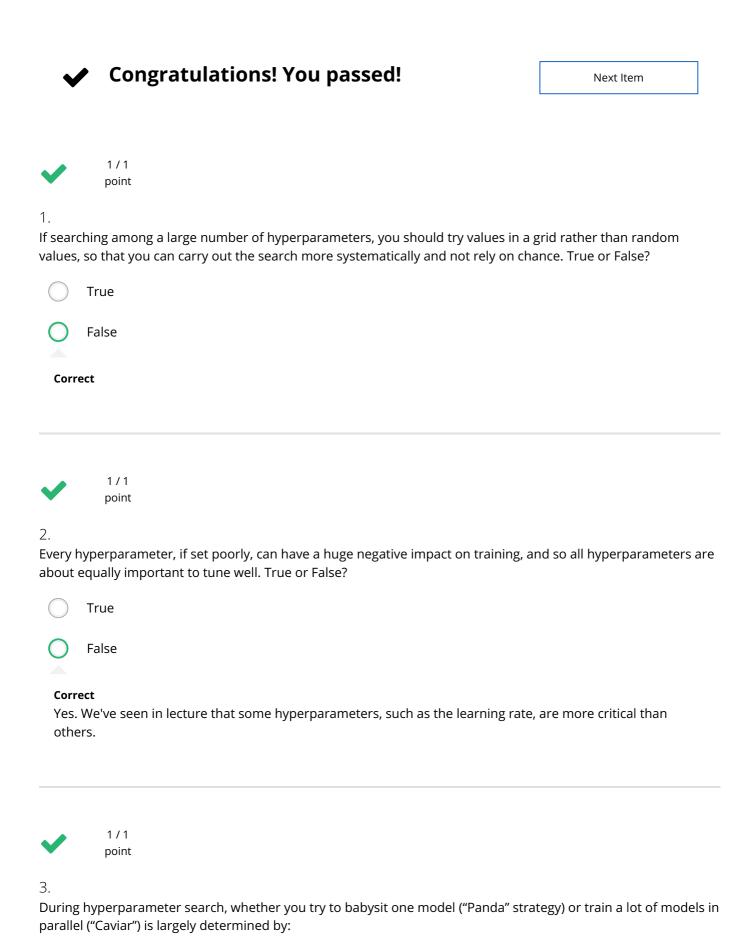
## Hyperparameter tuning, Batch Normalization, Programming Frameworks

Quiz, 10 questions



Whether you use batch or mini-batch optimization

## Hyperparameter tuning, Batch Normalization, Programming Frameworks

Quiz, 10 questhas presence of local minima (and saddle points) in your neural network

0	The amount of computational power you can access

#### Correct

The number of hyperparameters you have to tune

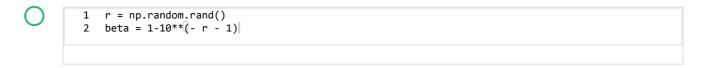


1/1 point

4.

If you think  $\beta$  (hyperparameter for momentum) is between on 0.9 and 0.99, which of the following is the recommended way to sample a value for beta?

```
1 r = np.random.rand()
2 beta = r*0.09 + 0.9
```



### Correct

```
1 r = np.random.rand()
2 beta = 1-10**(- r + 1)
```

```
1 r = np.random.rand()
2 beta = r*0.9 + 0.09
```



1/1 point

5.

Finding good hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter tally ing hyperparameter tally ing hyperparameter tally ing hyperparameter tally ing hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter tally ing hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter tally ing hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter tally ing hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter tally ing hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter tally ing hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter values is very time-consuming. So typically you should do it once at the start of the Hyperparameter values is very time-consuming.
True
False
Correct
1/1 point
6. In batch normalization as presented in the videos, if you apply it on the $\it l$ th layer of your neural network, what are you normalizing?
$igorup_{z^{[l]}}$
Correct
$\bigcirc  a^{[l]}$
$\bigcirc  b^{[l]}$
$igcup W^{[l]}$
1/1 point 7. In the normalization formula $z_{norm}^{(i)}=\frac{z^{(i)}-\mu}{\sqrt{\sigma^2+\varepsilon}}$ , why do we use epsilon?
$igcup$ In case $\mu$ is too small
To speed up convergence
To avoid division by zero  Correct
To have a more accurate normalization

## Hyperparameter tuning, Batch Normalization, Programming Frameworks

uiz, 10 qu	estions/ 1 point
8. Which	of the following statements about $\gamma$ and $eta$ in Batch Norm are true?
	The optimal values are $\gamma=\sqrt{\sigma^2+arepsilon}$ , and $eta=\mu$ .
Un-s	elected is correct
	They set the mean and variance of the linear variable $z^{[l]}$ of a given layer.
Corr	ect
	They can be learned using Adam, Gradient descent with momentum, or RMSprop, not just with gradient descent.
Corr	ect
	$eta$ and $\gamma$ are hyperparameters of the algorithm, which we tune via random sampling.
Un-s	elected is correct
	There is one global value of $\gamma\in\Re$ and one global value of $\beta\in\Re$ for each layer, and applies to all the hidden units in that layer.
Un-s	elected is correct
<b>~</b>	1 / 1 point
9. After ti you sh	raining a neural network with Batch Norm, at test time, to evaluate the neural network on a new example ould:
	If you implemented Batch Norm on mini-batches of (say) 256 examples, then to evaluate on one test example, duplicate that example 256 times so that you're working with a mini-batch the same size as during training.
	Use the most recent mini-batch's value of $\mu$ and $\sigma^2$ to perform the needed normalizations.

# Perform the needed normalizations, use $\mu$ and $\sigma^2$ estimated using an exponentially weighted average Hyperparametre the ingular characteristics. Programming Frameworks

Ouiz.	10	questions	:

Corre	ect
	Skip the step where you normalize using $\mu$ and $\sigma^2$ since a single test example cannot be normalized.
	1 / 1 point
).	
hich	of these statements about deep learning programming frameworks are true? (Check all that apply)
	A programming framework allows you to code up deep learning algorithms with typically fewer lines of code than a lower-level language such as Python.
Corre	ect
	Even if a project is currently open source, good governance of the project helps ensure that the it remains open even in the long term, rather than become closed or modified to benefit only one company.
Corre	ect
	Deep learning programming frameworks require cloud-based machines to run.
Un-se	elected is correct
Н	