Homework Week 6

Part 1

1) The following class is an example of

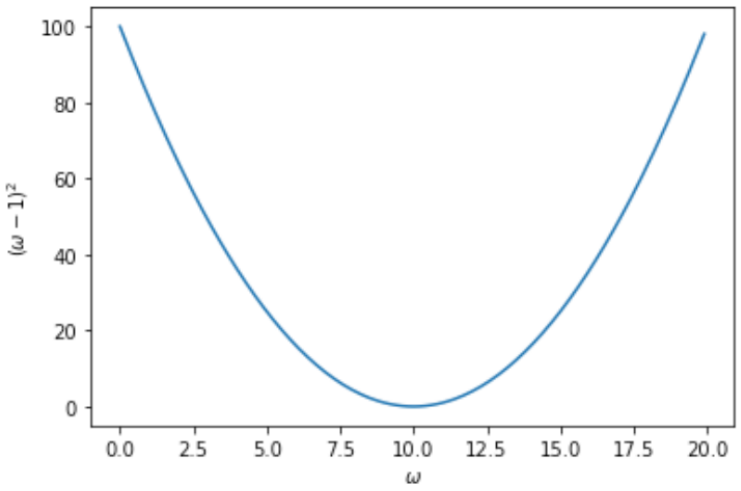
```
class Stuff(nn.Module):
        def __init__(self,in_size,output_size):
                super(LR, self).__init__()
                self.linear=nn.Linear(in_size,output_size)

        def forward(self,x):
                out=self.linear(x)
                return out
```

   A. Linear regression
   B. Logistic regression
   C. SoftMax regression
   D. None of the above

2) Consider the class **Stuff** we create the following object **model**, the input dimension is of size model=stuff(2,3)
   A. 1
   B. 2
   C. 3
   D. None of the above

You will need the plot of the loss function for the next questions $(w-10)^2$



3) What is the minimum value of the following function i.e $min(w-10)^2$)
   A. 100

B. 10
C. 0
D. 20

4) What parameter value minimizes the following $\mathrm{arg}min_w(w-10)^2$
   A. 100
   B. 10
   C. 0
   D. 20

5) You have 100 samples how many iterations do you perform for 1 epoch of stochastic gradient descent
   A. 1
   B. 2
   C. 10
   D. 50
   E. 100

6) You have 100 samples how many iterations do you perform for 1 epoch of mini-batch gradient descent with a mini-batch size of 10
   A. 1
   B. 2
   C. 10
   D. 50
   E. 100

7) You have a dataset object **dataset** what would you have to do before you perform mini-batch gradient descent with a batch size of 10
   A. trainloader=DataLoader(dataset=dataset,batch_size=10)
   B. optim.SGD(model.parameters(), lr = 0.01)
   C. model
   D. None

8) What object can we use to update parameters for batch, mini-batch and stochastic gradient descent
   A. trainloader=DataLoader(dataset=dataset,batch_size=1)
   B. optim.SGD(model.parameters(), lr = 0.01)
   C. model
   D. None

Solutions

1. A,C
2. B
3. C
4. B
5. E
6. C
7. A
8. B