# **Part1**

1. .
2. .
3. .

# **Part2**

1. **Building model:** Model is built as per parameters given in the assignment.[¶](http://localhost:8888/lab#Hyper-parameters)

* Hidden dimensions = 32
* Embedding Dimensions = 32
* Word embedding = nn.Embedding
* Batch Size = 1
* LSTM layers = 1
* Optimizer = SGD
* Sentence length = Any

1. **Calculating Perplexity:** Using the model built above, calculating the perplexity of the model:
   1. Train perplexity: 3836.12
   2. Dev perplexity: 2910.18
2. .
3. **Optimizer hyper tuning**: I have used 5 optimizers on the model built in section 1. Following are the results of the models:

|  |  |  |
| --- | --- | --- |
| **Optimizer** | **Train Perplexity** | **Dev Perplexity** |
| SGD |  |  |
| SGD with momentum 0.5 |  |  |
| Adadelta |  |  |
| Adagrad |  |  |
| Adam |  |  |

1. **Input and hidden dimensions hyper tuning**: I have built and trained 4 models with different dimension. Following are the results of these modes:

|  |  |  |  |
| --- | --- | --- | --- |
| **Input and Hidden dimensions** |  | **Train Perplexity** | **Dev Perplexity** |
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1. Batch processing

* **Section 2: Perplexity on simple model.**

