

# Machine Learning Methods / Course 67302

## Exercise #5 - Report

### 1 Sentiment Analysis

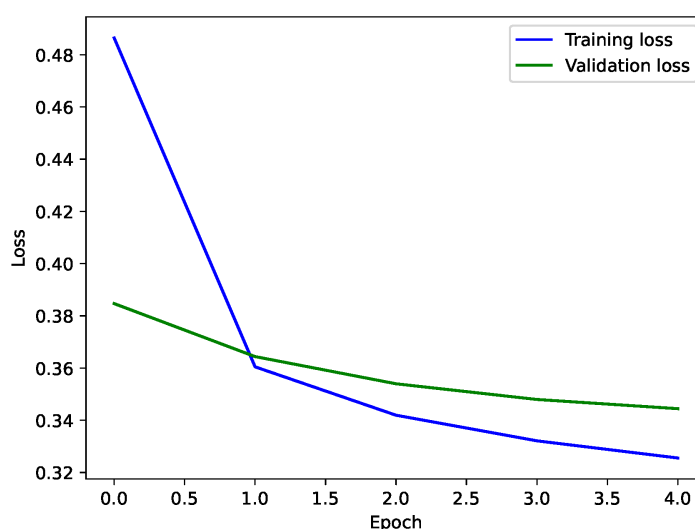


Figure 1: Losses per Epoch on Training and Validation sets

**Analysis** Looking at Figure 1, the plot for the Training Loss doesn't look anomalous - It's mostly what we expect: A rather dramatic change in the first few epochs and a more stable change in the later epochs. Though at a greater scope, the overall change is no so dramatic, compared to plots we've seen in earlier exercises. Moreover, the plot for the Validation Loss has very slight change from beginning to end, thus raising the possible hypothesis that the model's training, isn't affected much by each epoch, when the model is tested with the Validation Set.

We can also tell that the validation set experiences more loss than the training

set in the last 3-4 epochs, indicating of bad generalizaion, which can possibly be optimized by altering the model's composition and hyperparameters. It is unlikely that increasing the epochs with the same parameters would improve the loss plot, considering the already low change rate of the Validation Loss, and possibly the Training's as well. So increasing only the epochs can only create a state of overfitting.

## 2 Text Generation

In this part, I mostly used the demo code given by the author of MinGPT, in `Generation.py`, with the GPT-2 Model. The relevant code is attached at `mingpt_test.py`.

I selected 10 two-word prefixes as requested in the assignment, and generated 5 sentences for each, at length of 20 tokens max. The following are the results:

### 1. Life Means

- (a) Life means for everyone: no need to be rude or hostile. If a young woman is harassed or harassed by
- (b) Life means that if you get hit in combat, you will need to be able to reactivate the shield
- (c) Life means a certain way. It is in a sense not a necessity, but it would be a
- (d) Life means for me that we are very concerned here as the country will be affected to some degree by this development
- (e) Life means to me that when a child has been exposed and has spent the last several months in a room,

### 2. Machine Learning

- (a) Machine learning in humans is still in flux, and now researchers have begun to understand what is going on within the
- (b) Machine learning technology to create neural networks "If we don't know who you are, it's always
- (c) Machine learning. For the moment, I'm still hoping for "Avalon/Watson" (not
- (d) Machine learning algorithms make a good tool for deep learning. Many of these algorithms were previously used for deep learning,
- (e) Machine learning technology has an important role in the public health and educational environment as well as the private sector. At

### 3. My name

- (a) My name is Steve." "Hi Steve," said his mother. "What?" "Well

- (b) My name is Zazie Lippens, and I'm single. I'm 21!" And then that
  - (c) My name is Michael, and I'm a real person. I'm a retired Army Ranger, and as such
  - (d) My name is John, a student from North Carolina and a former Marine, retired in 2011, after 13 years
  - (e) My name is James." He told her. "He had come over for the game. He walked in from
4. Rock is
- (a) Rock is the highest ranked player in the tournament for the top eight teams of WCS, being seeded 3-0
  - (b) Rock is currently set to release its sixth album. The album's first single, "Take Your Love away,"
  - (c) Rock is always looking for great deals online, so check back often and we'll make you a one-day
  - (d) Rock is on the brink of getting a new lease of life; we may learn to live with this one.
  - (e) Rock is not the kind of place where you think you know all about it. You just hope to tell it
5. Love requires
- (a) Love requires a certain amount of patience. It will take a long time to fully develop the technique, but with
  - (b) Love requires more than just the best quality camera gear you can buy, but can also serve us better than Google
  - (c) Love requires a lot of resources and it is very hard to justify your spending on a product when you have to
  - (d) Love requires us to live within that ideal," he said. The study finds that people who drink alcohol
  - (e) Love requires more work. The solution is to do more. It's not easy, but I try, and
6. Forgiveness is
- (a) Forgiveness is what enables us to help people and bring about what we want to achieve. Empowering people is
  - (b) Forgiveness is often necessary when people lose someone you love, who wants them back, or who wants them to leave
  - (c) Forgiveness is the key word and I believe it is the right word as well. God knows that we are one
  - (d) Forgiveness is hard to achieve in a community when so many are involved. It's hard to get through it,

- (e) Forgiveness is the same thing that motivates the young person to make tough choices about who they are willing to become

7. Space travel

- (a) Space travel, the United States continues under the leadership of President Obama and has made significant contributions to human rights,
- (b) Space travel. It was about 10 kilometers long and was built as a sort of test bed of experimental equipment in
- (c) Space travel is something that everyone can enjoy, even just for some time. It can bring everyone together. If
- (d) Space travel in the next five or ten years will begin. This will bring us one step closer to a full
- (e) Space travel will be more seamless in coming years. The new intercity traffic patterns will create new problems for drivers

8. Gradient Descent

- (a) Gradient Descent: A Review of Scientific Theory, 2nd Edition<|endoftext|> When we talk about the 'tidal wave
- (b) Gradient Descent" (3,067) Sonic Landscape (7,094)
- (c) Gradient Descent on the Great Divide This section covers the course content for one year in a row. If
- (d) Gradient Descent (CDR) (See Table 1) , , . James A. S. H
- (e) Gradient Descent There were multiple methods to accomplish this. One could use these methods to generate a velocity gradient

9. Grandiose plans

- (a) Grandiose plans have been shown to affect more traditional markets (Eichler & Tofel, 1997).
- (b) Grandiose plans to use the new development, and the state officials will try to make sure his plans are considered carefully
- (c) Grandiose plans to retire at 30, leaving his boss, the chairman of the state legislature, as the chief executive
- (d) Grandiose plans to move forward with a new \$3,000-a-month child-care arrangement if she wins the
- (e) Grandiose plans to build a luxury yacht to be called the Princess of Sagarero's Pool in Costa Beach

10. Desperate times

- (a) Desperate times have been waiting for the American people to get out of this mess, and not just to leave.

- (b) Desperate times are the times when you may still be able to achieve.  
I'd argue even the occasional day to
- (c) Desperate times, there's an enormous number of people living in  
poverty. According to the new report,
- (d) Desperate times at work can often take a hard turn for the worse.  
For those who are willing and able,
- (e) Desperate times, I have to be careful to do something I regret later.  
I would consider this a very important