**Report for 6714 project**

**Main contribution:**

**Huifeng Ruan z5184816**

**Ye Liu z5172852**

**1. How do you implement evaluate() ?**

(some abbreviations: P = precision, TP = true positive, FP = false positive, FN = false negative)

first we need to calculate the **precision**, which means that for the given lists, the ratio of the number of terms that is correctly predicted in the predict list to the number of the total terms in the predicted list

the formula for calculating precision is:

Here:

TP is the number of true positive, i.e. the number of terms correctly predicted;

TP+FP is the total number of predicted terms in predicted list.

secondly we need to calculate the **recall**, which means the ratio of the number of terms that is correctly predicted in the predict list to the number of the total terms in the golden list. i.e. the total number of terms that should have been predicted.

The formula for calculating recall is:

Here

TP+FN is the total number of terms that should have been predicted.

F1 is actually the harmonic mean of Precision and recall, which is:

which is

**2. How does Modiﬁcation 1 (i.e., storing model with best performance on the development set) aﬀect the performance?**

TODO

**3. How do you implement new\_LSTMCell() ?**

by changing the formula for replacing the activation vector of the input gate with the complement of the activation vector of the forget gate.

Original:

cy = (forgetgate \* cx) + (ingate \* cellgate)

Changed:

cy = (forgetgate \* cx) + ((1 - forgetgate) \* cellgate)

**4. How does Modiﬁcation 2 (i.e., re-implemented LSTM cell) aﬀect the performance?**

TODO

**5. How do you implement get\_char\_sequence() ?**

**6.How does Modiﬁcation 3 (i.e., adding Char BiLSTM layer) aﬀect the performance?**