5. Conclusion

Creating a dialogue system can be challenging, considering the context in past conversation. This problem can be solved with LSTM, LSTM allows the preservation of gradients, the memory cell remembers the first input, which in this case is the very first conversation until the current conversation and also LSTM solves the vanishing gradient problem in common Recurrent Neural Network. This experiment and some few direct test on the bot concludes that the dialogue state manager system is working properly. Most errors though are coming from the intent classifier that could not classify some sentences that is not in the corpus properly.

This system is far from perfect as the we can still do more experiments on the hyper parameter, using different training data, improve the intent classifier, and perhaps adding a module for Named Entity Recognition.

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Lampiran

data latih.png

```
9   ##intent:how_register
10
11  - cara daftar bagaimana
12  - gimana ya cara daftar
13  - ingin jadi mahasiswa caranya gimana ya
14
15  ##intent:confirmation_yes
16
17  - iya
18  - betul
19  - sudah
20  - oke
21  - sip
22
23  ##intent:confirmation_no
24
25  - belum
26  - tidak
27
28  ##intent:ask_payment
```

Gambar 8. **Intent classifier data training sample**

```
18  * ask_payment
19      - utter_do_check
20
21  ## ask_angkatan_requirement
22  * registration_req_2016
23      - utter_confirm
24
25  ## ask_dormitory_requirement
26  * ask_dormitory_compulsory
27      - utter_dorm_compulsory
28  * ask_dormitory_exceptional
29      - utter_dorm_unregister
30
31  ## ask_usm_whw
32  * ask_usm_what
33      - utter_usm_what
34  * ask_usm_how
35      - utter_usm_how
36  * ask_usm_when
37      - utter_usm_when
38
```

Gambar 9. **LSTM/Dialogue state manager data training sample**