







action of multiple subjects are occurring and the system has to deal with it and keep track of who is doing what. Accuracy: 96.00%, Loss: 0.1144

- Task 13 – Co-referencing with multiple subjects : Same as task 11 but a bit more complex now because of multiple subjects coming into picture. Accuracy: 92.40%, Loss: 0.3715
- Task 14 – Time reasoning : This involves realizing the time periods in which specific events have occurred and there by predicting the sequence of their occurrence. Accuracy: 98.30%, Loss: 0.0487
- Task 15 – Deduction : This generally involves matching of a specific entity with its class, based on deduction from some specific facts. Accuracy: 98.20%, Loss: 0.0704
- Task 16 – Induction : Simple induction on entities involved. Accuracy: 65.90%, Loss: 1.6947
- Task 17 – Position detection : Based on the given facts, the system is supposed to predict the position of objects of interest. Accuracy: 63%, Loss: 1.7996
- Task 18 – Size reasoning : The ability of the system to compare two objects size and give a judgement is evaluated in this case. Accuracy: 96.60%, Loss: 0.1244
- Task 19 – Path Finding : When asked for, the correctness of the directions given by the model between two points is evaluated. Accuracy: 45.60%, Loss: 2.1480
- Task 20 – Agent's motivation : Here the system outputs a reason for a particular objects action or an incident that have occurred. Accuracy: 99.30%, Loss: 0.0201

Total Accuracy: 88.685000009834766

DMN has shown a decline in performance in tasks 2 & 3 in comparison with Memory neural networks using N-gram method. These both tasks share the common feature of having long input sequences which might be the reason for the difficulty as a recurrent model is used in DMN and very long inputs make it complex to perform. Whereas tasks 7 & 8 have improved a lot and this confirms the strength of multiple iterations and episodic memory module. No significant improvement has been shown in case of tasks 17 & 19.

## REFERENCES

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