Progress Presentation-I

e-Yantra Summer Intership-2017

Comparison Study of Traditional Way of Programming Firebird with the Statechart Based Model of Programming

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Overview of Project

- Project Name:- Comparison Study of Traditional Way of Programming Firebird with the Statechart Based Model of Programming
- Objective
  1. Modelling of robotic themes using statecharts
  2. Platform independent code generation
  3. Comparison study
- Deliverables
  1. Statechart models for various tasks
  2. Report containing comparison study

Overview of Task

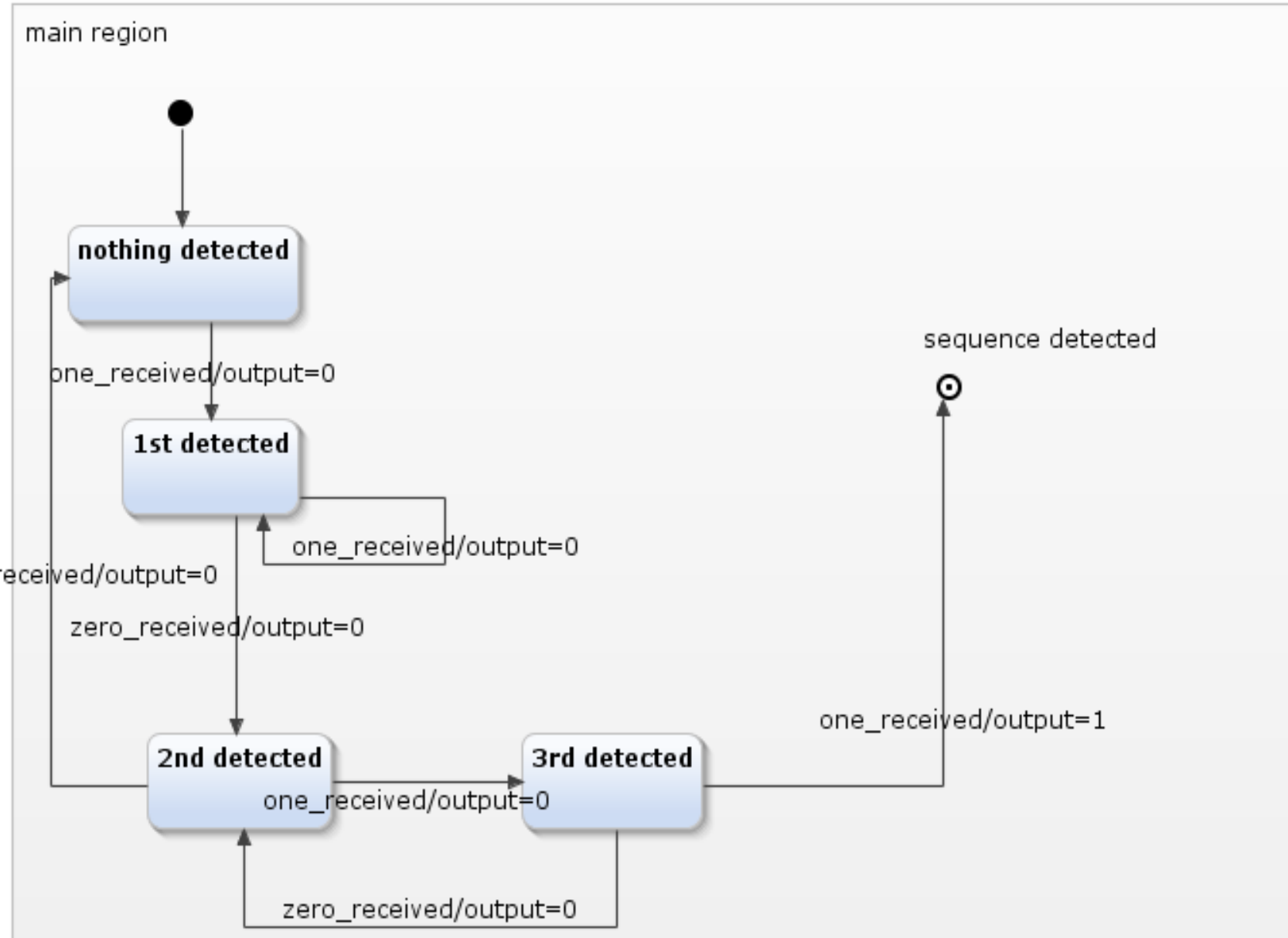
Table: Timeline

Task no.	Task	Deadline
1	**Learn Syntax and Semantics of Statecharts as described by David Harel.**	3 days
2	**Understanding the existing standard statechart models of some systems.**	3 days
3	Model some of the tasks given to students in e-yantra competition using statecharts.	10 days
4	**Explore the statechart Editor tool Yakindu.**	2 days
5	Model the tasks using Yakindu and integrate with firebird libraries	4 days
6	Writing the same code manually for the respective robotic tasks	12-14 days
7	Compare the cycle time for Manually written code and Yakindu generated code.	1 day
8	Comment on how to make the yakindu generated code efficient and how to make the software components reusable	3 days
9	Report and presentation	4 days

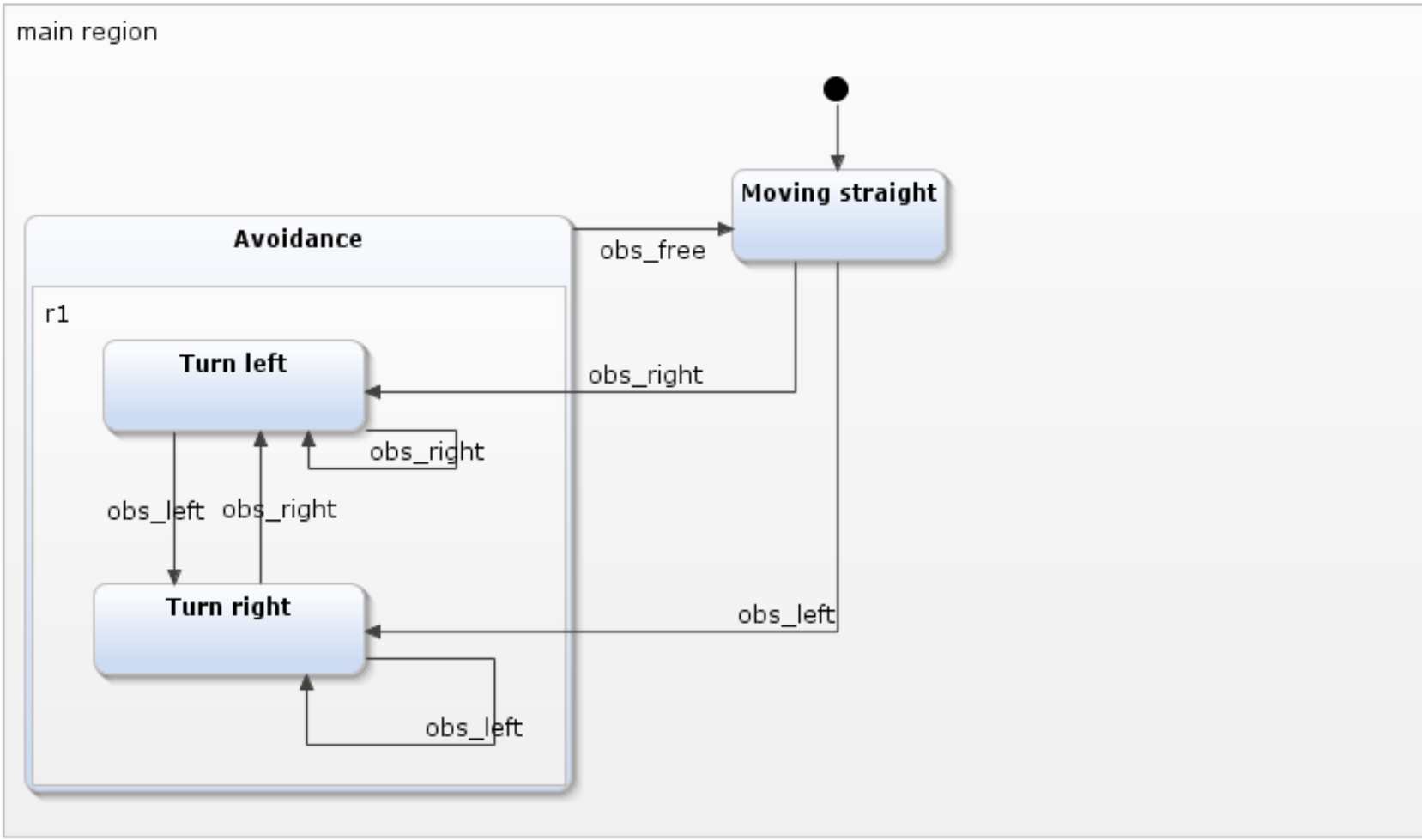
Task Accomplised

- Learned Syntax and Semantics of Statecharts as described in David Harel's paper
  1. Clustering
  2. Orthogonality
  3. Broadcast Communication
- understood some of the existing statechart models
  1. Line follower robot
  2. Obstacle avoider robot
  3. Citizen Quartz Multi-Alarm III wristwatch
  4. Valet Parking
- Explored statechart editor tool Yakindu. (made some models in it).
- Generated code for buzzer beep and line follower.

Sequence Detector - 1011

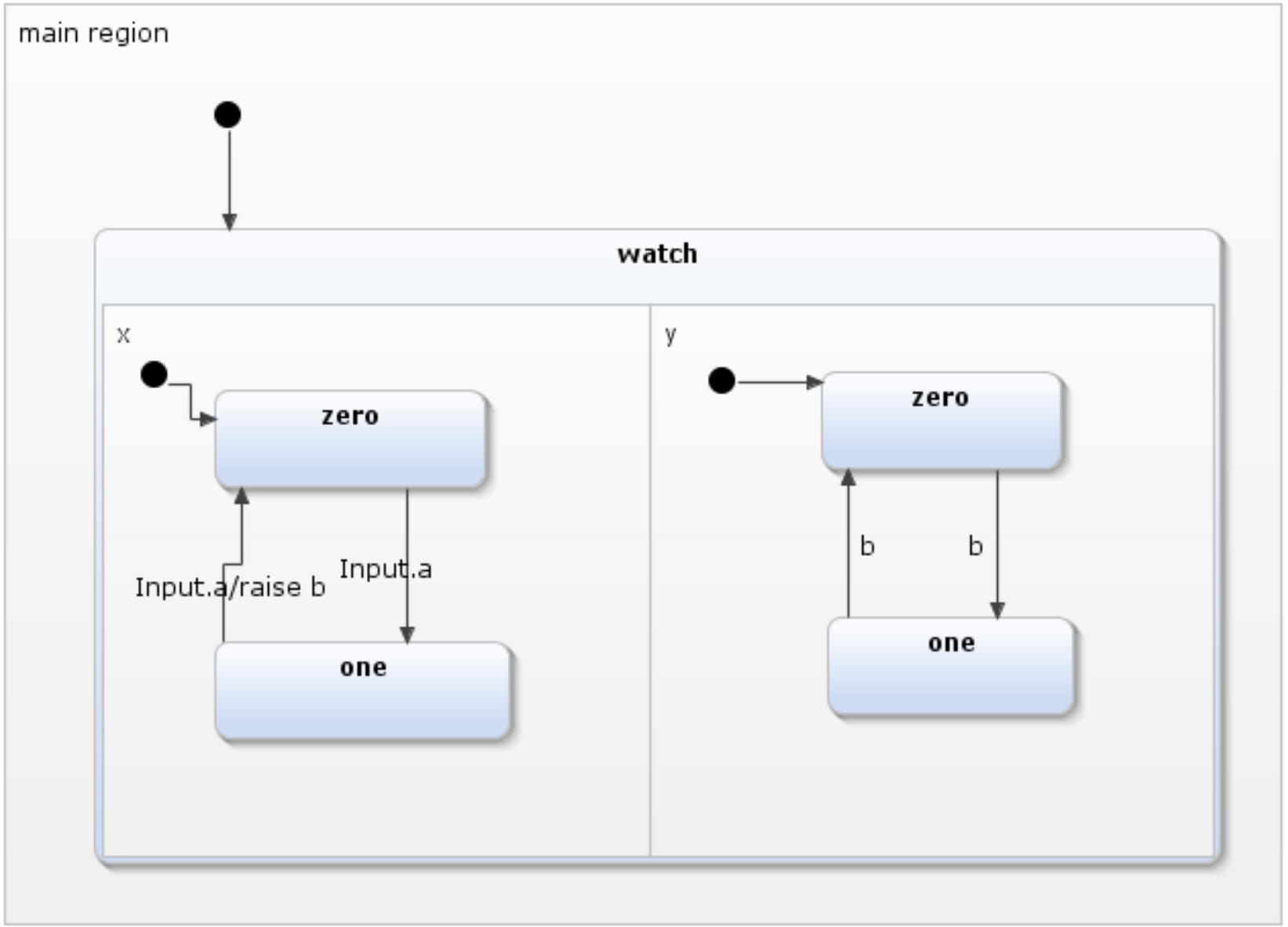


Obstacle Avoider

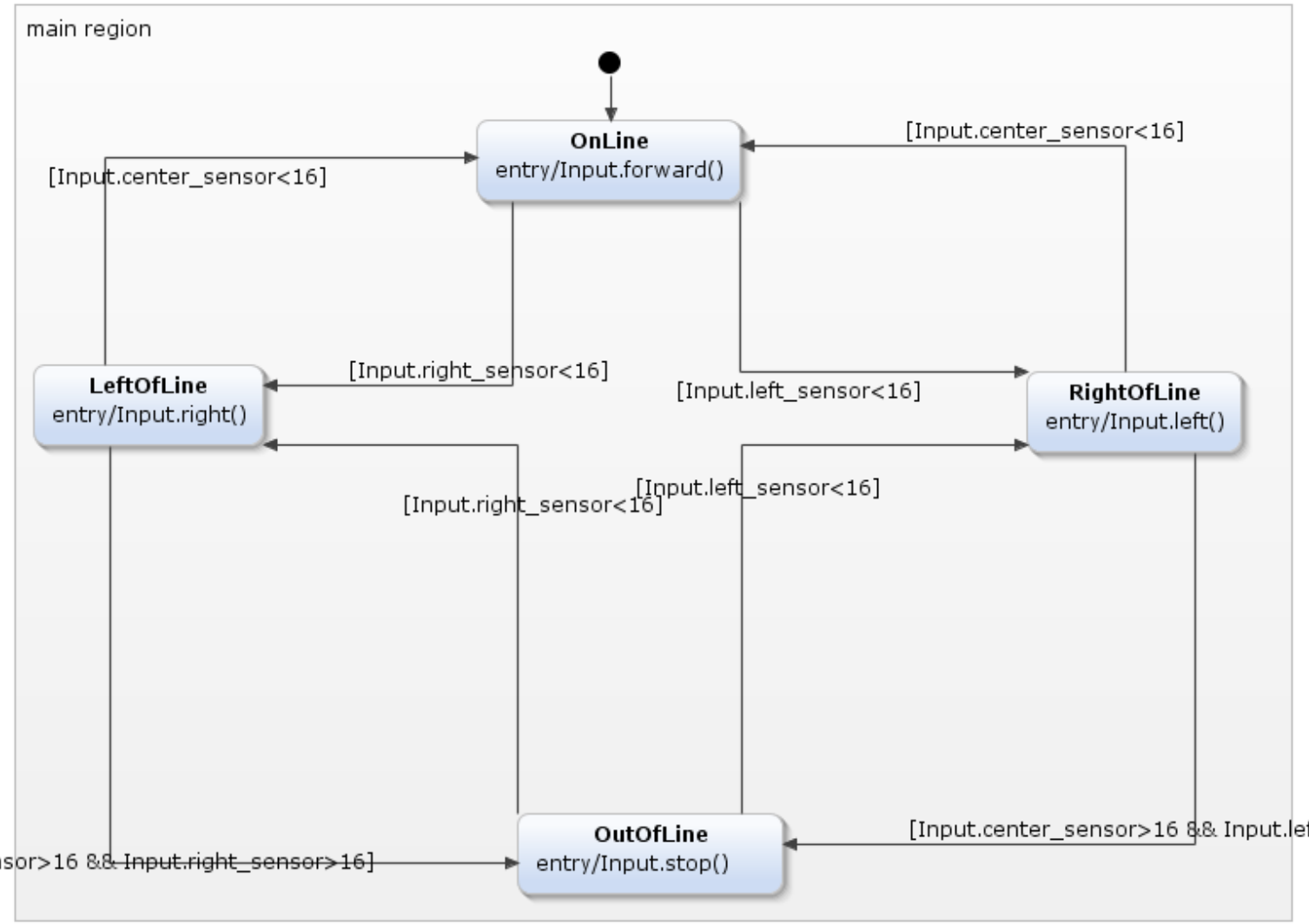


Reference:- http://web.stanford.edu/class/cs123/lectures/

Two bit counter



White line follower



Challenges Faced

- Understanding the statechart model of the watch given in David Harel's paper. (Contains lots of clustered states and orthogonal states with a lot of nesting and dependencies).

Future Plans

- Modelling some of the tasks given to students in e-yantra competition using statecharts.
- Modelling the tasks using Yakindu and integrate with firebird libraries
- Comparison study

Thank You

THANK YOU !!!