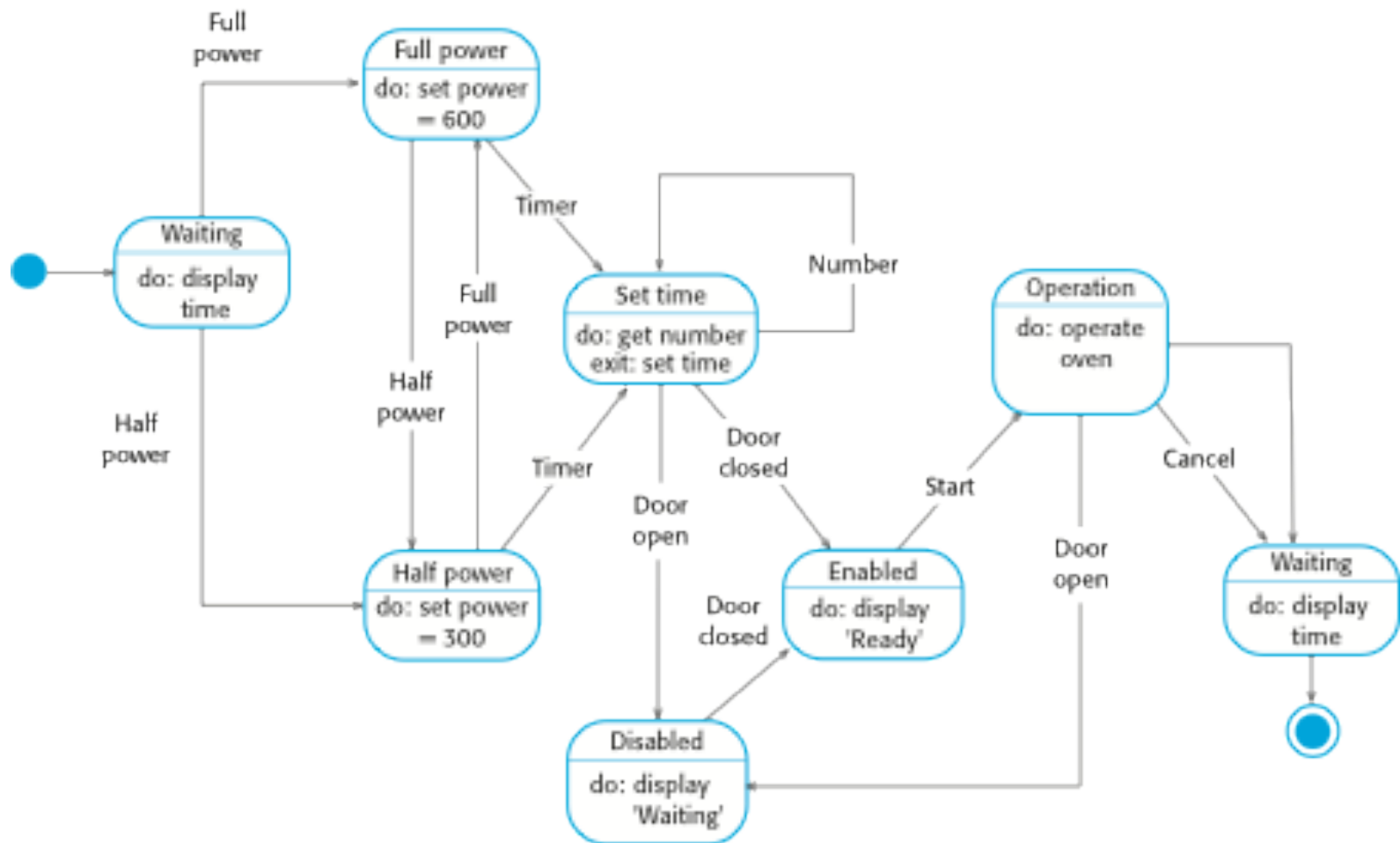


Modeling with UML (State Diagram)

State Diagrams

- Model the behaviour of the system in response to external and internal events.
- Show the system's responses to stimuli so are often used for modelling real-time systems.
- Show system states as nodes and events as arcs between these nodes. When an event occurs, the system moves from one state to another.
- State diagrams are an integral part of the UML and are used to represent state machine models.

State diagram of a microwave oven



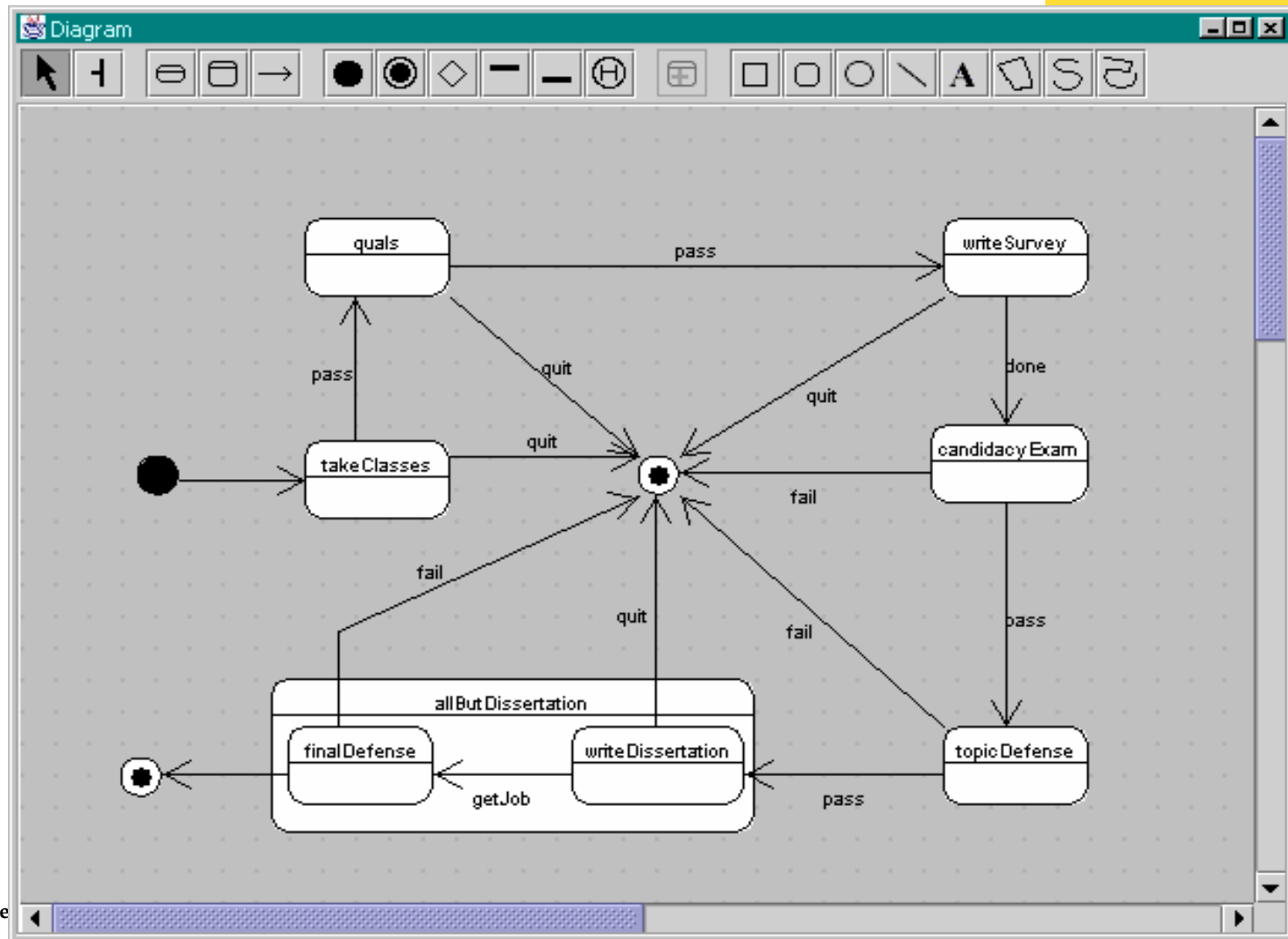
States & stimuli for the microwave oven

State	Description
Waiting	The oven is waiting for input. The display shows the current time.
Half power	The oven power is set to 300 watts. The display shows 'Half power'.
Full power	The oven power is set to 600 watts. The display shows 'Full power'.
Set time	The cooking time is set to the user's input value. The display shows the cooking time selected and is updated as the time is set.
Disabled	Oven operation is disabled for safety. Interior oven light is on. Display shows 'Not ready'.
Enabled	Oven operation is enabled. Interior oven light is off. Display shows 'Ready to cook'.
Operation	Oven in operation. Interior oven light is on. Display shows the timer countdown. On completion of cooking, the buzzer is sounded for five seconds. Oven light is on. Display shows 'Cooking complete' while buzzer is sounding.

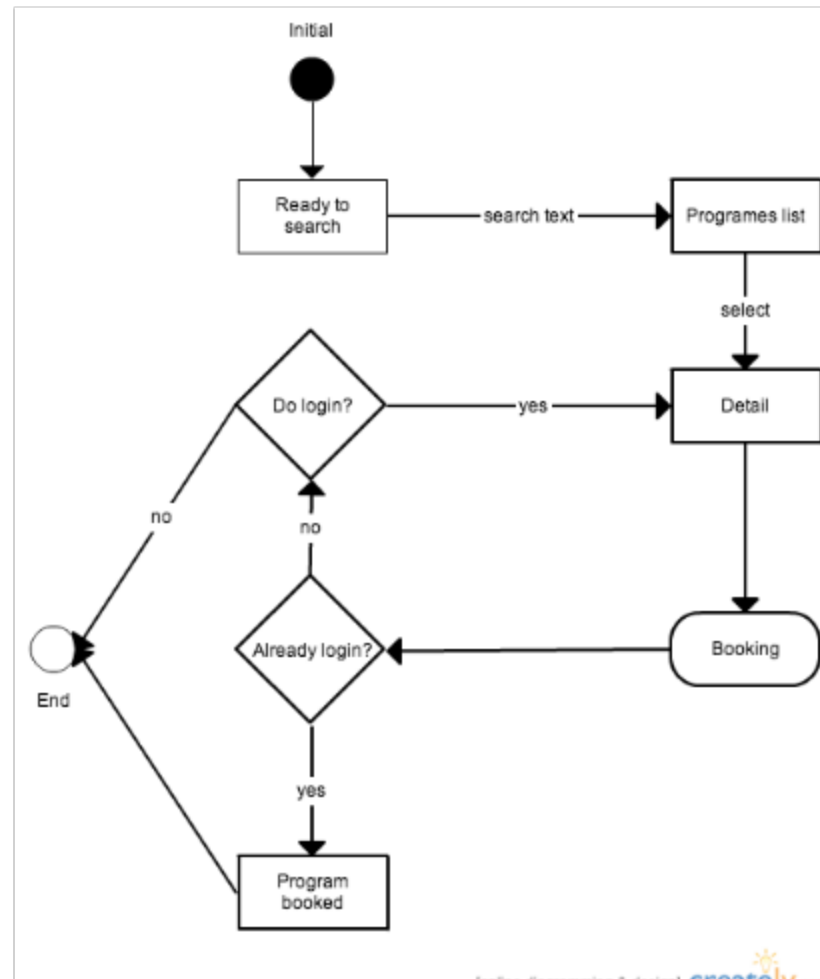
States & stimuli for the microwave oven

Stimulus	Description
Half power	The user has pressed the half-power button.
Full power	The user has pressed the full-power button.
Timer	The user has pressed one of the timer buttons.
Number	The user has pressed a numeric key.
Door open	The oven door switch is not closed.
Door closed	The oven door switch is closed.
Start	The user has pressed the Start button.
Cancel	The user has pressed the Cancel button.

State Diagram – PhD candidate



State Diagram – Seminar Search



Exercise: State Diagram

- Draw a state diagram that models the behavior of LCD display of the SimpleWatch.

Exercise: State diagram

