SEQUENTIAL DECISION MAKING

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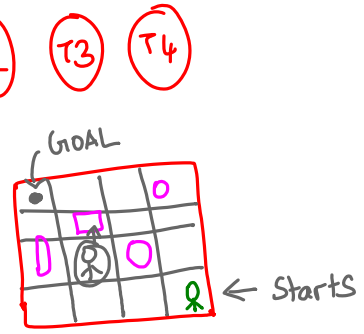
Problems

1. • Stock-market prediction
   - L set of experts

2. • Health care problem

3. • Robot Navigation problem.



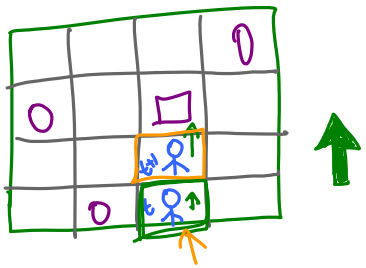
T1 T2 T3 T4

Common properties

- Sequential decisions
- Feedback.

Nature of Feedback?

- Stock-market prediction
  - ↳ FULL INFORMATION SETTING
    - [ONLINE LEARNING]
- Heathcare problem.
  - ↳ PARTIAL INFORMATION SETTING
    - [MULTI ARMED BANDIT]
- Robot Navigation problem
  - ↳ PARTIAL INFORMATION SETTING WITH STATE CHANGE
    - [REINFORCEMENT LEARNING]



Stock Market prediction

→ Receive expert advice (yes/no advice)

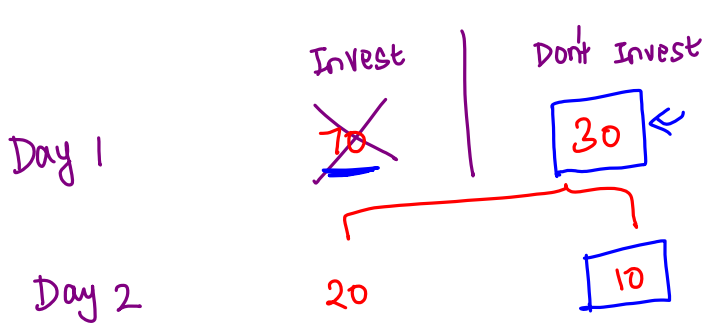
→ Make a yes/no decision

→ Receive feedback (mistake or not)

Assumption: There is a stock-market "GURU" amongst your friends (experts)

QUESTIONS

- How many mistakes will the algorithm make?
- How will you change this algorithm when no "GURU" is present?



ALGORITHM – Predict yes/no based on majority of "Consistent" experts.

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An expert who has not made any mistakes so far