Task tracking

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0.1 Context

As human beings with shifting goals and priorities, the list of task we need to accomplish appears to always be growing. Given no explicit strategy to deal with these tasks, one may jump from one task to another without really making any apparent progress toward any one goal. The purpose of this article is to think about what it means to manage tasks and how should one deal with such problem (which tasks to complete and in what order) in order to be as effective as possible.

0.2 Learned in this study

0.3 Things to explore

- Is it possible to evaluate a task execution objectively without considering the agent objectives/goals?
- Should a decay function be applied to the metric used to order tasks? It is not useful if all tasks decay linearly (as the order will be preserved)

1 Overview

Define goals
List tasks
Associate tasks with other tasks and tasks hierarchies

- Define dependencies/orders of execution
- A task may be related to the accomplishment of many tasks
  Assign a priority to each task
  Each time a task is executed, evaluate the value of the task in regard to some global evaluation function
- Pleasure
- Drain
- Monetary reward
- Experience
- Novelty
- Repetition/Monotonous
- Timespan until deadline
- Timeframe/time horizon
- Expected timespan before the next reward
- Expected duration
- Required effort
  A metric should provide guidance as to whether or not one should continue to do this task in the future
  A metric should provide guidance as to which task should be accomplished next

Tasks grouped/tagged by action

- Actions
- Read

- Write
- Think/Reflect
- Watch
- Listen
- Speak

Example

- Reading
  - Reading about AGI
    - Reading about automated programming
    - Reading about automated refactoring
    - Reading about universal artificial intelligence
    - Reading about intelligence

Observations

- Some things may not be rewarding/valuable at one point in time while it may be later on (due to the inability to understand or to use the task)

How should a work session be assessed?

- Should it be a 1 to 10 score?
- Should it be some sort of reordering operation? (In other words, do this after this has been executed)

List creation and maintenance procedure

- Start with an empty list
- Add needs to the list
- Associate needs to one another
- Organize needs
- Convert needs into actions
- Define expected action duration
- Define order/dependencies

Prioritization methods

- Random
- Prioritized once
- Dynamically prioritized
- Topological
- Best first
- Critical path
- Hierarchically
- Contextually
- Hybrid/multi methods
- Consensus
- Average with some statistical measure (standard deviation)
- Prioritization threshold (only the top x priorities defined, each item compared to the bottom of the stack)
- Delay by a given duration, stored in the task, then progressively more whenever the task doesn't get executed
- Return on investment (estimated value/estimated effort)

Task properties

- Name
- Description
- Start/End date
- Contexts

- Tags
- Deadline (soft/hard)
- Dependencies (tasks/people/context/resources)
- Estimated effort
- Estimated value
- State (active/completed/cancelled)
- Start/End time of execution period
- Evaluation of the execution period (score/would redo/not do)
- Previous execution periods
- Notes

Operations

- Execute
- Delay
- Kill
- Split

Main loop

- Get a task from the task priority queue
- Execute the task for the specified quantum
- Evaluate the progress of the task
- Evaluate the quality of the work that was done during the quantum

Example use case

- The user defines a list of applications that provides him tasks, such as Jira, Redmine, Asana, Google Calendar, etc.
- The user defines the periods of his day where the scheduler should fetch tasks from those applications
  - e.g., from 8 to 12 on Monday to Friday, fetch the tasks assigned to me in Jira
- Given that tasks may have deadlines, value estimates, priorities, etc., the scheduler attempts to maximize the desired metric defined by the user
- Certain tasks may interrupt the user mid-session, e.g., while working on a 8 hours task, it will prompt the user to determine whether the task is likely to be completed in the next 4 hours, and if not, what would be their new estimate

2 See also

3 References