Homework 6

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a/ Let's say P represents our optimal data amount processed. We can split this into subproblems where we just look at individual days. We will declare variables below.

P - optimal data processed (MB)

r - days since last reboot (day)

i - day (day)

S - data to be processed (MB)

X - data processing capacity (MB)

n - number of days (day) = 4

Let us formulate the model. There are two cases to look at:

1) System rebooted yesterday. No data was processed yesterday. We can take the maximum amount today. Add data from two days ago.

2) System not rebooted yesterday. Add the data processed yesterday and process the maximum capacity today.

Thus, we get the recurrence:

$$P(i) = \max\left(P(i-1) + \min(x_i, s_r),\ P(i-2) + \min(x_i, s_0)\right)$$

data from 2 days ago

Not rebooted

Rebooted

data from yesterday

b/ schedule.cpp

c/ schedule_1.cpp

d/ schedule_2.cpp