

1-MakeAppointment

Clinic

appointment : Patient \rightarrow Dentist
list : seq Patient
onduty : P Dentist

$\text{ran}(\text{list}) \subseteq \text{dom}(\text{appointment})$
 $\text{ran}(\text{appointment}) \subseteq \text{onduty}$

Clinic'

appointment' : Patient \rightarrow Dentist
list' : seq Patient
onduty' : P Dentist

$\text{ran}(\text{list}') \subseteq \text{dom}(\text{appointment}')$
 $\text{ran}(\text{appointment}') \subseteq \text{onduty}'$

MakeAppointment0

$p? : \text{Patient}$

$d? : \text{Dentist}$

ΔClinic

$\text{list}' = \text{list} \wedge \langle p? \rangle$

$\text{appointment}' = \text{appointment} \oplus \{ p? \mapsto d? \}$
 $\text{onduty}' = \text{onduty}$

Success

$\text{success} [\text{rep!} : \text{Message} :: \text{rep!} = \text{ok}]$

$\text{Message} = \{ \text{ok}, \text{error1}, \text{error2} \}$

$\text{MakeAppointment} = (\text{MakeAppointment0} \wedge \text{success}) \vee \text{error1}$

error1

$d? : \text{Dentist}$

$\square \Delta \text{Clinic}$

$\text{rep!} : \text{Message}$

$\text{rep!} : \text{error1}$

$d? \notin \text{onduty}$

NextAppointment

$$\text{NextAppointment} = (\text{NextAppointment0} \wedge \text{success}) \vee \text{error2}$$

NextAppointment0

$p!$: Patient

$d!$: Dentist

$rep!$: Message

Δ Clinic

$list = \langle head\ list \rangle \wedge list'$

$p! = head\ list$

$d! = appointment(p!)$

$appointment' = appointment$

$orderly' = orderly$

error2

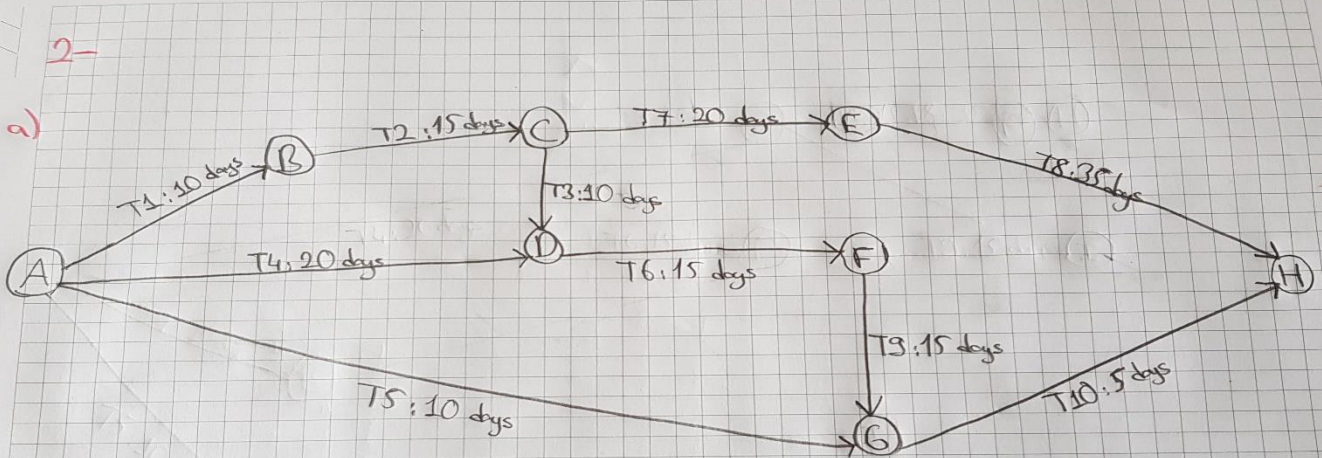
\square Clinic

$rep!$: Message

$rep!$: error2

$list = \langle \rangle$

2- Part a and b



b) The Shortest Possible Completion Time = $10 + 15 + 20 + 35 = 80$

Part c) Gantt Chart

