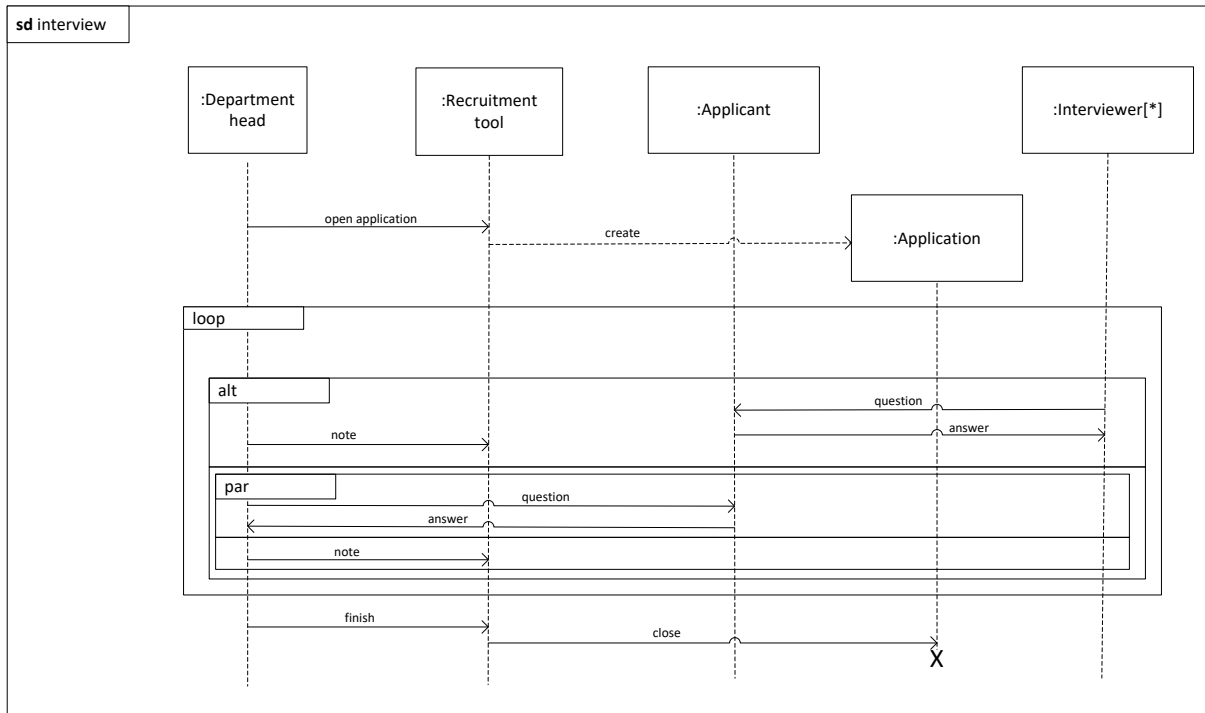


## Exercise I

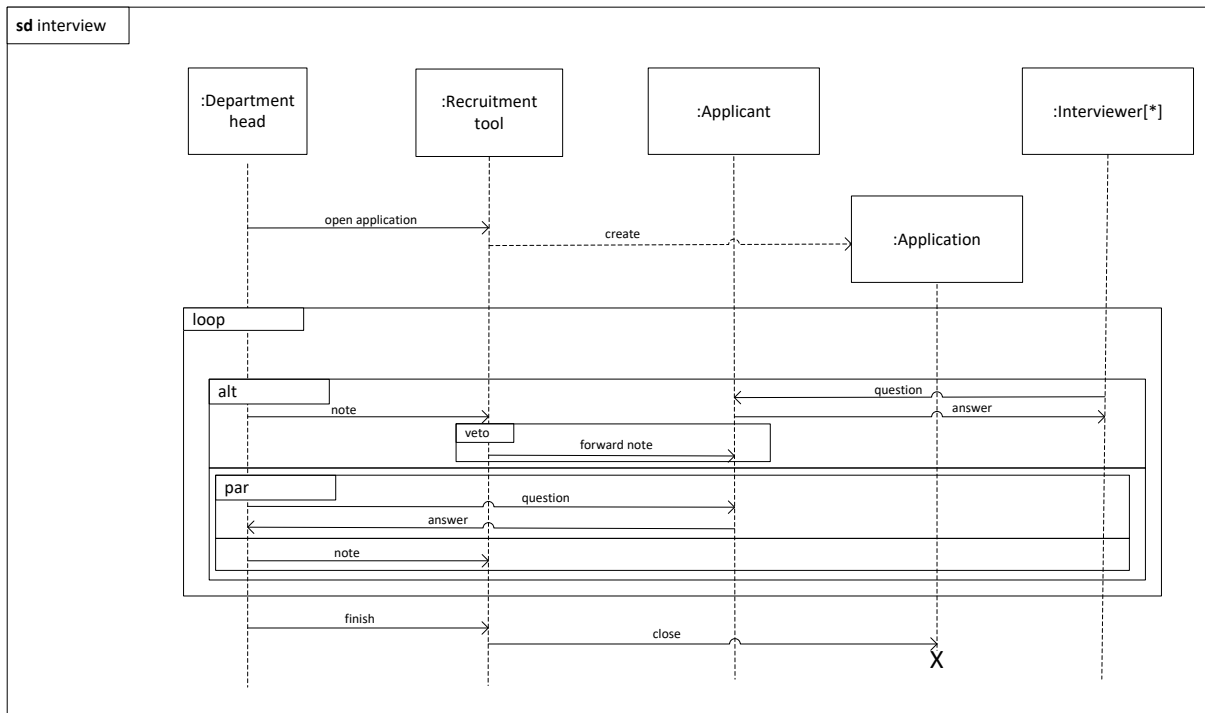
Consider the following sequence diagram:



- What is/are the possible first event/event(s) in a positive trace for this diagram? Explain your answer.
- What is/are the possible last event/event(s) in a positive trace for this diagram? Explain your answer.
- Draw a sequence diagram `interview_s` that is pure supplementing of `interview` (pure in the sense that it does not involve any step of narrowing). Explain your answer.
- Draw a sequence diagram `interview_r` that is a refinement of `interview` and involves both supplementing and narrowing. Explain your answer.

## Exercise II

Consider the following sequence diagram which contains an alt construct with two operands.



- Describe in detail (define the traces) the interaction obligation (p2,n2) representing the semantics of the second operand of the alt construct.
- Describe in detail (define the traces) the interaction obligation (p1,n1) representing the semantics of the first operand of the alt construct.
- Describe in detail the interaction obligation (p1+2,n1+2) representing the semantics of the alt construct.

Assume the "alt" operator in the sequence diagram is replaced by the "xalt" operator.

- Describe in detail the semantics of the resulting xalt construct.
- How many interaction obligations are there in the resulting sequence diagram? Explain your answer.