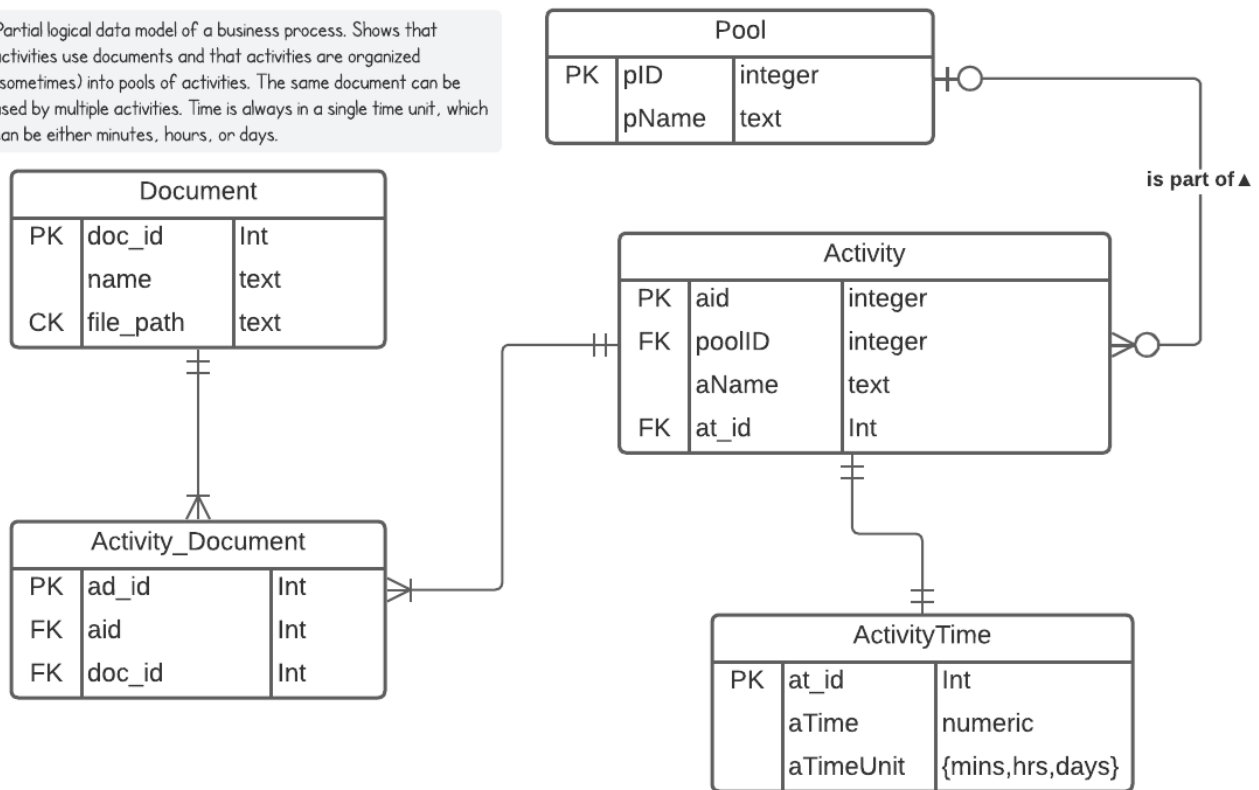


## HW2

I add a joint table Activity\_Document between Document and Activity to break the many to many relationship. I also split the table ActivityTime out from Activity to break the possible transitive dependency aName → aTime to make it in 3NF. I also changed the multiplicity from Activity to Pool from only one to zero or one, to match the description which says (sometimes) activities are organized into pools.

Partial logical data model of a business process. Shows that activities use documents and that activities are organized (sometimes) into pools of activities. The same document can be used by multiple activities. Time is always in a single time unit, which can be either minutes, hours, or days.



All fields are single valued and all tables have primary key, so the model is in 1NF.

There's no composite key, so no attribute depends on part of the composite key, so it's 2NF.

Document: the only non-prime attribute is name, so it's 3NF.

Activity\_Document: aid and doc\_id are foreign keys, and only depend on the primary key ad\_id.

Pool: pName is the only non-prime attribute, so it's 3NF.

Activity: poolID and at\_id are foreign keys, so only depend on aid. aName has no relation with the foreign keys and only depends on the primary key aid, so it's 3NF.

ActivityTime: aTime and aTimeUnit are independent on each other and only depend on the primary key at\_id. So it's 3NF.

All entities are 3NF so the model is in 3NF.

Terms are revised to match the changes of the model.

Entity	Attribute	Definition/Description	Type	Comments/Example
<b>Activity</b>	aid	unique identifier	integer	artificial PK, e.g., 332
	aName	the name of the activity	text	"Add Student to Course Roster"
	at_id	the activity time	Int	foreign key from ActivityTime
	poolID	the pool to which this activity may belong; some activities do not belong to any pool	integer	2234
ActivityTime	at_id	unique identifier	Int	artificial PK
	aTime	time for a activity	number	120
	aTimeUnit	time unit	{mins,hrs,days}	hrs
<b>Pool</b>	pID	unique identifier	integer	artificial PK, e.g., 100
	pName	name of the pool	text	"Registrar", "Student"
<b>Document</b>	doc_id	unique identifier (PK)	text	artificial PK, e.g., "doc665_ProcS"
	name	name of the document	text	"Registration Form"
	fil_path	unique file path to stored document	text	"/usr/files/regform998.pdf"
Activity_Document	ad_id	unique identifier	Int	artificial PK
	aid	the activity associated	Int	456
	doc_id	the document associated	Int	123