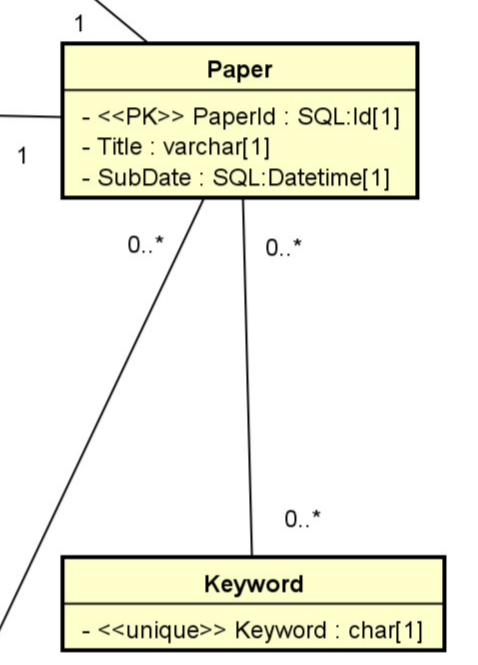
**2/13/2020**

**A2.** (basic) For a many to many association between classes CA (class Paper) and CB (class Keyword), create a new relation RAB(RA\_Id, RB\_Id).

1. (RA\_Id, RB\_Id) is a candidate key (composite)
2. RA\_Id references RA(RA\_Id) as a foreign key.
3. RB\_Id references RB(RB\_Id) as a foreign key.
4. An additional surrogate key, such as RAB\_Id, can be created.



RA: Paper(PaperId, Title, SubDate, …)

PK: PaperId (RA\_Id)

|  |  |  |  |
| --- | --- | --- | --- |
| **PaperId** | **Title** | **SubDate** | keywordId? No |
| P1 | How to make ice cream | 1/21/2019 | K1, K2 (not atomic) |
| P2 | How to eat ice cream | 2/2/2020 | K1, K3, K3 (not atomic) |
| P3 | How to excel in DB | … |  |
|  |  |  |  |

RB: Keyword(keywordId, keyword)

CK: [1] KeywordId, [2] Keyword  
PK: [1] KeywordId (RB\_Id)

|  |  |  |
| --- | --- | --- |
| **KeywordId** | **Keyword** | **PaperId? no** |
| K1 | Ice cream | P1, P2 (not atomic) |
| K2 | cooking | P1 |
| K3 | Eating | P2 |
| K4 | Good life | P2 |

PaperKeyword(PaperId, KeywordId): RAB(RA\_Id, RB\_Id)

|  |  |  |
| --- | --- | --- |
| **PK\_Id** | **PaperId:** RA\_Id | **KeywordId: RB\_Id** |
| 1 | P1 | K1 |
| 2 | P1 | K2 |
| 3 | P2 | K1 |
| 4 | P2 | K3 |
| 5 | P3 | K4 |



What is the key of the sakila database? Bad question

What are the candidate keys of the table film\_actor in Sakila? Good.