1. What are the ages of actors?

$\pi_{Age}(Actor)$

2. What are the titles of movies released in the 1940's?

$\pi_{Title}(\sigma_{WhenReleased \geq 1940}(Movie) \cap \sigma_{WhenReleased \leq 1949}(Movie))$

3. Which movies cost more than 1000000 and were released before 1920?

a. Using Selection

$\sigma_{Cost > 1,000,000}(\sigma_{WhenReleased < 1920}(Movie))$

b. Using Intersection

$\sigma_{Cost > 1,000,000}(Movie) \cap \sigma_{WhenReleased < 1920}(Movie)$

4. What is the age of each actor that was cast in a movie in the 1940s?

$\pi_{Age}(Actor \bowtie CastIn \bowtie (\sigma_{WhenReleased \geq 1940}(Movie) \cap \sigma_{WhenReleased \leq 1949}(Movie)))$

5. What are the ages of actors that are cast in some movie released before 1920?

$\pi_{Age}(Actor \bowtie CastIn \bowtie (\sigma_{WhenReleased < 1920}(Movie)))$

6. What are the names of actors that were **not** cast in a movie?

$\pi_{Name}(Actor - (Actor \ltimes CastIn))$

7. What are the names of actors that were cast in **at least two different** movies?

$\pi_{Name}(\sigma_{\mathscr{F}count(Actor \bowtie CastIn) \geq 2}(Actor))$

8. What are the names of actors that were cast in **exactly one** movie?

$\pi_{Name}(\sigma_{\mathscr{F}count(Actor \bowtie CastIn) = 1}(Actor))$

9. What are the names of actors that were cast in a movie in at least **three consecutive years?**

π Name((Actor $\bowtie$ CastIn $\bowtie$ Movie) $\cap$

(Actor $\bowtie$ CastIn $\bowtie \sigma_{WhenReleased = (\pi_{WhenReleased}(Actor \bowtie CastIn \bowtie Movie)}(Movie)) \cap$

(Actor $\bowtie$ CastIn $\bowtie \sigma_{WhenReleased = (\pi_{WhenReleased}(Actor \bowtie CastIn \bowtie \sigma_{WhenReleased = (\pi_{WhenReleased}(Actor \bowtie CastIn \bowtie (Movie)}(Movie)}(Movie))$

Full text version:

π Name(

(Actor $\bowtie$ CastIn $\bowtie$ Movie) $\cap$

(Actor $\bowtie$ CastIn $\bowtie \sigma$ WhenReleased = (π WhenReleased(Actor $\bowtie$ CastIn $\bowtie$ Movie)(Movie)) $\cap$

(Actor $\bowtie$ CastIn $\bowtie \sigma$ WhenReleased = (π WhenReleased(Actor $\bowtie$ CastIn $\bowtie \sigma$ WhenReleased =

(π WhenReleased(Actor $\bowtie$ CastIn $\bowtie$ (Movie)(Movie)(Movie))

10. What are the names of actors that were cast in **all** of the movies?

π Name(Actor $\bowtie$ CastIn $\bowtie$ Movie) $\div$ Movie