All Collections Query

$$\Pi_{name, type, description, address, phone\#, contact\,name} (\sigma (collection))$$

All Exhibition Query

$$\Pi_{name, start\_date, end\_date} (\sigma (Exhibition))$$

Art - Query by Cost

$$\Pi_{id, year\_created, artist\_name, title, description, origin, epoch, category, ownership, exhibition\_name, collection\_name} (\sigma_{cost > 15.00} (ArtObject \bowtie_{id = art\_object\_id} Permanent\,Collection))$$

Art - Query by Origin

$$\Pi_{id, year\_created, artist\_name, title, ..., collection\_name} (\sigma_{origin = 'American'} (ArtObject))$$

Art - Query Other by Type

$$\Pi_{id, year\_created, artist\_name, ..., collection\_name} (\sigma_{Material\,Type = 'Photo'} (ArtObject \bowtie_{id = art\_object\_id} Other))$$

Art - Query Sculptures by Height

$$\Pi_{id, year\_created, artist\_name, ..., collection\_name} (\sigma_{height >= 10} (ArtObject \bowtie_{id = art\_object\_id} Sculpture))$$

Artist - MainStyle Query

$$\Pi_{name, origin, main\_style, epoch, date\_born, date\_died, description} (\sigma_{mainstyle = 'modern'} (Artist))$$

Artist - Update DateDied Query

$$\sigma_{name = 'Leonardo\,da\,Vinci'} (Artist \bowtie_{DateDied = '1519-5-2'} Artist)$$

Borrowed Art - Query Unreturned

$$\Pi_{id, year\_created, artist\_name, ..., collection\_name} (\sigma_{Date\_returned = null} (ArtObject \bowtie_{id = art\_object\_id} Borrowed))$$

Collection - Query by Type

$$\Pi_{name, type, ..., contact\,name} (\sigma_{type = 'museum'} (Collection))$$

Painting Art - Query by Paint Type

π id, year_created, ..., collection_name(

$\quad \sigma$ paint type = 'Oil' (ArtObject $\bowtie$ id = art_object_id Painting))

Art - Query by a date they are on display

π id, year_created, ..., collection_name (

$\quad \sigma$ ownership = 'Permanent', start_date >= '2013-2-2',

$\qquad\qquad\qquad\qquad$ end_date <= '2013-2-3',

$\qquad\qquad\qquad\qquad$ current_status = 'display' (

$\quad$ ArtObject $\bowtie$ exhibition_name = name Exhibition,

$\quad$ ArtObject $\bowtie$ id = art_object_id Permanent Collection))

Art - Query Borrowed

π title, desc, category, artist_name, epoch(

$\quad \sigma$ ownership = 'Borrow' (Art Object))

Art - Query by Artist Name

π id, year_created, ..., collection_name (

$\quad \sigma$ artist_name = 'Vincent van Gogh' (Art Object))

Art - Query by Category

π id, year_created, ..., collection_name (

$\quad \sigma$ category = 'other' (Art Object))

Art - Query by epoch and type

Υ id, year_created, ..., collection_name (

$\quad \sigma$ epoch = 'modern', category = 'Painting')

Art - Query by permanent collection

π title, desc, category, artist name, epoch(

$\quad \sigma$ ownership = 'perm' (Art Object))

Art - Query on display

π id, year_created, ..., collection_name(

$\quad \sigma$ exhibition name = 'Art Show', ownership = 'Perm', current_status='display'

$\quad$ (ArtObject $\bowtie$ id = art_object_id Permanent Collection))