

1. empty_db
 - a. Literally creates an empty dictionary
2. add_item
 - a. Inputs: database, artwork, artist, year, description, owner
 - b. Output: booleans indicating whether edit was successful
 - c. Checks to see if database contains a specified artist.
 - i. artist is mapped to info in database
 - ii. info is another dictionary, that maps artwork to a set of 3 values
 - iii. Checks to see if info contains a specified artwork.
 1. If it does
 - a. returns that no edits were made
 2. If it does not, then artwork in the info is mapped to a set of 3 values containing year, description, owner
 - d. If the original database does not have the specified artist yet, then info is set as an empty dictionary.
 - e. artist in the database is mapped to a dictionary that maps artist to a set of 3 values, including year, description, owner
 - f. Returns that changes were made.
3. change_owner
 - a. Inputs: database, artist, artwork, new owner
 - b. Output: booleans indicating whether edit was successful
 - c. Checks to see if database contains a specified artist.
 - i. artist is mapped to info in database
 - ii. info is another dictionary, that maps artwork to a set of 3 values
 - d. Checks to see if info contains a specified artwork.
 - i. If it does, the last item in the set of values that artwork is mapped to is removed
 - ii. It is replaced by the new owner
 - iii. Then the new set is readded to the database.
 - iv. Returns that changes were made
 - e. Otherwise, returns that no changes were made.
4. select_artist
 - a. Inputs: database, artist
 - b. Output: selected data
 - c. If the specified database has the artist, then the artist and the information it is mapped to is returned.
 - d. Otherwise, an empty dictionary is returned
5. select_artwork
 - a. Inputs: database, artwork
 - b. Outputs: selected data
 - c. data dictionary initialized
 - d. For every artist in the database, info is set to the mapping of the artist.
 - e. If info has the specified artwork and artist has not been added to the empty data

- i. then the artist in data is mapped to the empty data
 - ii. artist is then mapped to artwork
 - iii. artwork is mapped to its corresponding information
 - f. The data database is returned.
- 6. select_year
 - a. Inputs: database, year
 - b. Outputs: selected data
 - c. data dictionary initialized
 - d. For every artist in the database, info is set to the mapping of the artist.
 - e. For every artwork in info, tupledata is set to the mapping of the artwork.
 - f. if the year specified is equal to the first item in tupledata and the artist is not yet in the empty initialized dictionary,
 - g. Then artist in data is mapped to the empty initialized data
 - h. Artist is mapped to artwork and artwork is mapped to the set of tuple data
 - i. the data set is returned
- 7. select_keyword
 - a. Inputs: database, keyword
 - b. Outputs: selected data
 - c. data dictionary initialized
 - d. For every artist in the database, info is set to the mapping of the artist.
 - e. For every artwork in info, tupledata is set to the mapping of the artwork.
 - f. if the description specified is in second position in tupledata and the artist is not yet in the empty initialized dictionary,
 - g. Then artist in data is mapped to the empty initialized data
 - h. Artist is mapped to artwork and artwork is mapped to the set of tuple data
 - i. the data set is returned
- 8. select_owner
 - a. Inputs: database, owner
 - b. Outputs: selected data
 - c. data dictionary initialized
 - d. For every artist in the database, info is set to the mapping of the artist.
 - e. For every artwork in info, tupledata is set to the mapping of the artwork.
 - f. if the year specified is in the third position in tupledata and the artist is not yet in the empty initialized dictionary,
 - g. Then artist in data is mapped to the empty initialized data
 - h. Artist is mapped to artwork and artwork is mapped to the set of tuple data
 - i. the data set is returned
- 9. format_results
 - a. Inputs: database
 - b. Output: organized string with information
 - c. empty string initialized
 - d. for artists in the database, for artwork in the mapping of artists
 - i. the year, owner, and keyword are specified as the mapping of artwork

- ii. the empty string is continually appended with the artist, artwork, year, description, and owner, each separated by a comma and a space.
- iii. this information is returned.