ENTITIES AND ATTRIBUTES

1. Think about 3 possible entities for each of the following information systems:

   a) Gym

   b) Chess game

   c) Bus transport company

2. For the examples from previous activity, identify attributes of 4 types (single-valued and mandatory, single-valued and optional, multivalued and mandatory, multivalued and optional) for each entity.

3. For the following entities, find:

   • Identifier attributes or keys, primaries and secondaries or alternatives (remember that a key can be a set of one or more fields)

   • Possible multivalued attributes

   • Possible optional attributes

   a) **DOWNLOAD** entity. It represents each download from an internet server.

      DOWNLOAD (size, duration, server_ip, client_ip, date_time)

   b) **ROUTE** entity. It represents each route that a bus can travel in a passenger transport company.

      ROUTE (origin_station, destination_station, bus_stop, distance, theoretical_duration)

   c) **JOURNEY** entity. It represents each specific journey that a bus runs.

      JOURNEY (date, origin, destination, real_time, theoretical_time, bus_number, journey_code)

   d) **PROJECT** entity. It represents projects of an engineering company.

      PROJECT (project_code, name, client_company, budget, observations, responsible, initial_date, end_date)

e) **PHONE_CALL** entity. It represents each call in a telephone exchange.

PHONE_CALL (origin_phone, destination_phone, date_time, company, duration, cost)

f) **ELECTRICITY_BILL** entity. It represents the bills issued by the electricity company.

ELECTRICITY_BILL (consumption, price, total, period)

g) **EXAM** entity. It represents an examination of a subject in a study centre.

EXAM (initial_date_time, end_date_time, subject, exam_code)

h) **PLAY** entity. It represents each specific play in a card game.

PLAY (card_id, players_id, points_at_stake, winner_id, date_time)

i) **CARD** entity. It represents each card in a deck.

CARD (suit, number, value)