Requirements Specification for Child Recruitment Process

1. General description of business process

a). A general description of the business process and a description of the performance metrics generated by this process, possible current analytical problems.
The child recruitment process for the network of kindergartens involves several steps. First, parents or guardians contact the kindergarten to inquire about enrolment. Then, they are provided with information about the kindergarten and the enrolment process, including available programs, tuition fees, and required documents. If interested, the parents or guardians are invited to tour the kindergarten facilities and meet with staff members to ask any questions they may have. After the tour, the parents or guardians can submit an enrolment application, which includes personal information about the child and the family, as well as the desired start date and program. The application is then reviewed, and if accepted, the parents or guardians are notified of the enrolment and required to pay the enrolment fees.

Performance metrics generated by this process may include the **number of inquiries received**, the **number of applications** received, the **acceptance rate**, and the **enrolment rate**. **Cost per child** of each program in each kindergarten location/district and **revenue** generated by each program. Analytical problems may include tracking the effectiveness of different marketing and outreach strategies, identifying reasons for low enrolment rates or high rejection rates, and evaluating the impact of different factors (e.g., location, program offerings) on enrolment.

The two main goals as metrics for this business process are:
Location and program optimization: The CEO wants to have a clear insight into which locations and programs are in high demand, and which ones are underutilized. One metric to measure this could be the utilization rate of each location and program, which would show how effectively the resources are being used. This metric could be calculated by dividing the number of children enrolled in a location or program by the maximum capacity of that location or program. **The CEO wants to increase utilization rate from 88% to 93%, so a 5% increase in utilization rate.**

Cost optimization: The CEO wants to analyze the prices regarding facilities and the programs used in their care, and monitor the metrics of demand of those cases. One metric to measure this could be the cost per child for each location and program. This metric would show how much it costs to provide care for each child in each location and program, and could be used to identify opportunities for cost savings or to optimize the pricing of the services offered. **Based on that, CEO wants to have a 3% increase in revenues.**

b). Typical questions

- What is the average recruitment fee for each location, taking into account fees for children age?
- Which location has the biggest income?
- Are there any locations where the recruitment fees are significantly higher or lower than the average?

- How does the number of applicants per location relate to the recruitment fees?
- Are there any correlations between the recruitment fees and other variables in the dataset, such as the location size or the number of employees?
- What is the average price admission for each age group?
- What is the average price of admission for time spent in the facility across locations?
- Are there any age groups or time spent in the facility that have significantly higher or lower prices of admission?
- How does the price of admission vary based on other variables in the dataset, such as the location or the number of employees?
- Which location has the highest income within age groups?
- How does the price admission for each age group compare to the national average for similar facilities?
- How much does the price admission differ between full-time and part-time enrolment?
- What is the ratio of children to teachers in each kindergarten location/district, and how does this vary by program?
- How many applications were received for each kindergarten location/district, and what percentage of these applications were accepted?
- What is the cost per child of each program in each kindergarten location/district, and how does this compare to revenue generated by each program?

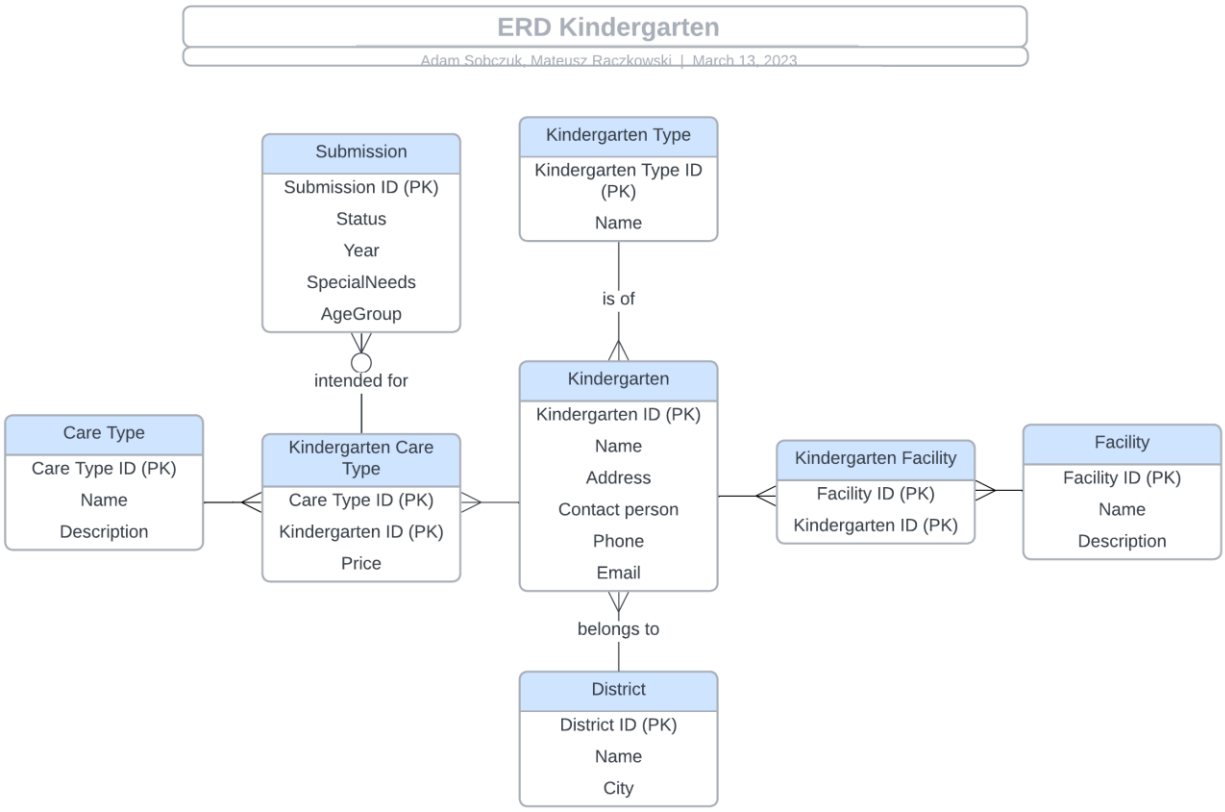
c). Data

Data for the child recruitment process may include:

- Number of children enrolled in each kindergarten location/district
- Program enrollment data by kindergarten location/district
- Enrollment data for each kindergarten by year
- Age data of children enrolled in each kindergarten location/district by program
- Ratio of children to teachers in each kindergarten location/district by program
- Number of applications received for each kindergarten location/district and percentage accepted
- Cost per child of each program in each kindergarten location/district and revenue generated by each program.

Such data would mainly come from a relational database of facilities with their individual characteristics, and CEO's spreadsheet that covers employment and programs specification with individual data.

2.Data sources structures



Relational Database:

Table Name	Attribute	Attribute Type	Description
Kindergarten - This entity represents a kindergarten, which is an educational institution for young children.	Kindergarten ID	Numeric	Artificial Primary Key
	Name	String	The name of the kindergarten
	Address	String	The address of the kindergarten
	Contact person	String	The name and surname of the person responsible for the kindergarten
	Phone	Numeric	Phone number to this kindergarten
	Email	String	Email address of the kindergarten
	Type ID	Numeric	Foreign key referencing Type table
	District ID	Numeric	Foreign key referencing District table
Kindergarten type –	Kindergarten Type ID	Numeric	Artificial Primary Key

This entity represent the different types of Kindergartens, such as Public, private, or Religious.	Name	String	Category of kindergarten: public, private, language-focused, Montessori-style, religious-based
District - This entity represents the different districts within a city or region where the kindergartens are located.	District ID Name City	Numeric String String	Artificial Primary Key The name of the region The name of the city the region is located in
Facility - This entity represents the facilities or amenities that the kindergartens may have, such as a playground, a gym, or a cafeteria.	Facility ID Name Description	Numeric String String	Artificial Primary Key The name of the facility that kindergarten may have: Playground, Classroom, Sleeping Room… Additional description of the facility
Care Type - This entity represents the different types of care that the kindergartens can provide, such as full-time or part-time care, or care for children with special needs. The attributes for this entity include the care type's name and a brief description of its characteristics.	Care Type ID Name Description	Numeric String String	Artificial Primary Key The name of the type of care conducted: full-day, half-day, after-hours, summer camp Additional description of the care type
Kindergarten Facility - this entity represents the relationship between a kindergarten and a facility, indicating which kindergartens have which facilities.	Kindergarten ID & Facility ID	Numeric	Composite primary key consisting of two foreign keys from table Kindergarten and Facility respectively
Kindergarten Care Type - This entity represents the relationship between	Kindergarten ID & Care Type ID	Numeric	Composite primary key consisting of two foreign keys from table Kindergarten

a kindergarten and a care type, indicating which kindergartens offer which types of care.			and Care Type respectively
	Price	Numeric	Represents the price for each kindergarten and care type combination offered by the kindergartens.
Submission - this entity describes	Submission ID	Numeric	Artificial Primary Key
	Status	String	Status of the submission can take 4 values: pending (waiting list), rejected, accepted, resigned
	Year	Date (Year format)	Year of kindergarten care for which the submission was assigned
	Special Needs	Boolean	Is the children of special needs
	Age Group	String	Can take 3 values: (infant, toddler, preschooler)
	Kindergarten Care Type ID	Numeric	Foreign Key to Kindergarten Care Type

CEO Excel

Sheet 1 (Information about kindergarten capacity, each line describes one kindergarten, line 1 is a header row):

Column A: Kindergarten ID (Numeric same as in Relational database)

Column B: Capacity of infants (numeric)

Column C: Capacity of toddlers (numeric)

Column D: Capacity of pre-schoolers (numeric)

Column E: Total number of children the kindergarten can take (numeric, aggregation of the whole capacity with additional spots included)

Column I: Number of Teachers (numeric)

Column J: Number of Additional Staff (numeric)

Column K: Info about special needs teacher (numeric, available(1) or not(0))

Column L: Additional price for infants

Column M: Additional price for toddlers

Column N: Additional price for preschoolers

Column O: Additional price for children with special needs

3. Scenarios of analytical problems

Recruitment fees based on location:

What is the average recruitment fee for each location, taking into account fees for children age?

Which location has the biggest income?

Are there any locations where the recruitment fees are significantly higher or lower than the average?

How does the number of applicants per location relate to the recruitment fees?

Are there any correlations between the recruitment fees and other variables in the dataset, such as the location size or the number of employees?

Price admission regarding child age, time in facility (weekly) etc.:

What is the average price admission for each age group?

What is the average price of admission for time spent in the facility across locations?

Are there any age groups or time spent in the facility that have significantly higher or lower prices of admission?

How does the price of admission vary based on other variables in the dataset, such as the location or the number of employees?

Which location has the highest income within age groups?

How does the price admission for each age group compare to the national average for similar facilities?

How much does the price admission differ between full-time and part-time enrolment?

4. Data needed for analytical problems

Analytical problem: “Recruitment fees based on location”

1. What is the average recruitment fee for each location, taking into account fees for children age?
    - **Kindergarten ID** - CEO Excel, Sheet 1, column A
    - **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M
    - **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N
    - **Overall price for a year of attending to a kindergarten for a given care type**– Relational Database, Kindergarten Care Type, Price
2. Which location has the biggest income?
    - **Kindergarten ID** - CEO Excel, Sheet 1, column A; Relational Database, Kindergarten, Kindergarten ID
    - **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M

- **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N
- **Additional price in a given kindergarten for children with special needs** - CEO Excel, Sheet 1, column O
- **Overall price for a year of attending to a kindergarten for a given care type** – Relational Database, Kindergarten Care Type, Price
- **Number of infants, toddlers and preschoolers currently enrolled to a given facility in the current year attending to full-day, half-day or after-hours care** – Relational Database, Submissions
- **Number of special needs children currently enrolled to a given facility in the current year** – Relational Database, Submissions

3. Are there any locations where the recruitment fees are significantly higher or lower than the average?
    - **Overall price for a year of attending to a kindergarten for a given care type** – Relational Database, Kindergarten Care Type, Price
4. How does the number of applicants per location relate to the recruitment fees?
    - **Overall price for a year of attending to a kindergarten for a given care type** – Relational Database, Kindergarten Care Type, Price
    - **Kindergarten ID –** Relational Database, Kindergarten, Kindergarten ID
    - **Number of submissions in given year** - Relational Database, Submission (count)
5. Are there any correlations between the recruitment fees and other variables in the dataset, such as the location size or the number of employees?
    - **Overall price for a year of attending to a kindergarten for a given care type** – Relational Database, Kindergarten Care Type, Price
    - **Kindergarten ID –** Relational Database, Kindergarten, Kindergarten ID; CEO Excel, Sheet 1, Column A
    - **District name –** Relational Database, District, Name
    - **Information about facilities that a given kindergarten consists of –** Relational Database, Kindergarten Facility
    - **Total number of children the kindergarten can take** - CEO Excel, Sheet 1, Column E
    - **Number of Teachers in a given kindergarten** - CEO Excel, Sheet 1, Column I
    - **Number of Additional Staff in a given kindergarten** - CEO Excel, Sheet 1, Column J
    - **Info about special needs teacher in a given kindergarten** - CEO Excel, Sheet 1, Column K

Analytical problem: “Price admission regarding child age, time in facility (weekly) etc.”

1. What is the average price admission for each age group?
    - **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M
    - **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N
2. What is the average price of admission for time spent in the facility across locations?
    - **Overall price for a year of attending to a kindergarten for a given care type** – Relational Database, Kindergarten Care Type, Price
    - **Kindergarten ID –** Relational Database, Kindergarten, Kindergarten ID
3. Are there any age groups or time spent in the facility that have significantly higher or lower prices of admission?

- **Overall price for a year of attending to a kindergarten for a given care type** – Relational Database, Kindergarten Care Type, Price
- **Kindergarten ID –** Relational Database, Kindergarten, Kindergarten ID; CEO Excel, Sheet 1, Column A
- **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
- **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M
- **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N

4. How does the price of admission vary based on other variables in the dataset, such as the location or the number of employees?
    - **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M
    - **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N
    - **Additional price in a given kindergarten for children with special needs** - CEO Excel, Sheet 1, column O
    - **Kindergarten ID –** Relational Database, Kindergarten, Kindergarten ID; CEO Excel, Sheet 1, Column A
    - **District name –** Relational Database, District, Name
    - **Information about facilities that a given kindergarten consists of –** Relational Database, Kindergarten Facility
    - **Total number of children the kindergarten can take** - CEO Excel, Sheet 1, Column E
    - **Number of Teachers in a given kindergarten** - CEO Excel, Sheet 1, Column I
    - **Number of Additional Staff in a given kindergarten** - CEO Excel, Sheet 1, Column J
    - **Info about special needs teacher in a given kindergarten** - CEO Excel, Sheet 1, Column K
5. Which location has the highest income within age groups?
    - **Kindergarten ID –** CEO Excel, Sheet 1, Column A; Relational Database, Kindergarten, Kindergarten ID
    - **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M
    - **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N
    - **Number of infants, toddlers and pre-schoolers currently enrolled to a given facility** – Relational Database, Submission (count)
6. **How does the price admission for each age group compare to the national average for similar facilities?**
    - **Additional price in a given kindergarten for infants** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers** - CEO Excel, Sheet 1, column M
    - **Additional price in a given kindergarten for pre-schoolers** - CEO Excel, Sheet 1, column N
    - **National average cost for similar service data** – requires additional sources
7. **How much does the price admission differ between full-time and part-time enrolment?**
    - **Additional price in a given kindergarten for infants for full time enrollment** - CEO Excel, Sheet 1, column L
    - **Additional price in a given kindergarten for toddlers for full time enrollment** - CEO Excel, Sheet 1, column M

- **Additional price in a given kindergarten for pre-schoolers for full time enrollment** - CEO Excel, Sheet 1, column N
- **Additional price in a given kindergarten for infants for part-time enrollment** - requires additional sources and changes in business process
- **Additional price in a given kindergarten for toddlers for part-time enrollment** - requires additional sources and changes in business process
- **Additional price in a given kindergarten for pre-schoolers for part-time enrollment** - requires additional sources and changes in business process