

Specification of business processes

1. Business goals of the organization

The primary school “jedynka” aims to provide quality education. The main objective of the school administration is to improve student performance. To achieve this, the school principal has set a goal of increasing the overall average final grades by 3% every year. The principal closely monitors two key metrics: the average academic performance of students and attendance rates of students. It assumes that the school is considered successful if both of these metrics show an upward trend of at least 0.1% per month. Currently, the biggest problem for the administration is to determine why student performance improves or declines in a given academic period.

The most important aspects of school operations include teaching effectiveness and student participation. Students are enrolled in different subjects such as Mathematics, Science, and Literature, and their progress is assessed through homework, quizzes, and exams. Classes are taught by different teachers. Additionally, students participate in some activities outside school such as e.g. sport or remedial classes.

The principal is interested in analyzing the impact of attendance on student performance, as well as identifying the subjects where students struggle the most. They also want to understand which activities positively influence students.

2. Business processes

Process 1: Assess student performance

a. General Description of the Business Process and Performance Metrics

This process makes sure that students' academic progress is consistently tracked and analyzed. It consists of such steps: the process begins with students completing homework, tests, or projects as part of their classes. Teachers can then review and assess the submitted work. After grading student's work, the teachers enter the grade into the school's grading system, where students can see their grades and receive feedback. Students can be assessed multiple times throughout the academic year, and their progress is tracked over time. Performance metrics may include grades, attendance, participation. School administration also monitors student's participation in extracurricular activities as it may influence their grades.

b. Typical Questions

What is the average grade per subject this semester?

Is there a student who has gotten the highest possible grade for every assignment that was graded in all subjects this semester?

What is the difference in the average grade of students that are currently in the first year compared to students that are currently in the second year?

What is the trend of the average grade over the last three years?

What are the 10 students that have the highest overall average grade?

c. Data

Student performance data is stored in the Student Grading System (Relational Database). This includes student identifiers, subjects, assessment scores, and exam results.

Extracurricular activity records are maintained in Excel file. This contains details on students' participation in school clubs, sports, and arts programs

Process 2: Attendance Tracking

a. General Description of the Business Process and Performance Metrics

The attendance tracking process ensures that students' classroom participation is recorded and analyzed. The attendance tracking process is as follows: for each class session, teachers record student attendance. Then the attendance records are then stored in the school's attendance system. Regular analysis of attendance trends is conducted to identify students at risk of removal due to high absence levels. Based on this analysis, intervention plans are developed for students with low attendance. If such intervention is needed the parents or the legal guardian of a student will be called into office.

b. Typical questions

What is the average attendance rate per class during the days when classes took place?

What are the 10 students with the highest attendance rate during the days when classes took place?

What is the trend in attendance during the days when classes took place over the past three years?

Has there been a day where not a single student attended the classes during the day when classes took place?

What is the difference in attendance rate for classes starting at 8 a.m. in compared to classes starting at 9 a.m. during the days when classes took place?

c. Data

Attendance records are stored in Excel file, capturing: Student IDs, subject names, date, and attendance status.

Student and subject information are extracted from the Student Grading System (Relational Database).

