



The Faculty of Information and Communication Technology

Mahidol University

Project Assignment: Phase 1: Business domain study and database design

Chem Ou Center tutorial school in Thailand

Business Domain: Education

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Section 1, Group 4

ITCS 241 Database Management Systems

Semester 1, 2022

Preface

This report is prepared as a part of Database Management System (ITCS 241) to study the knowledge in the subject of data modeling process of Chem-Ou Center tutorial school in Thailand and studied to understand to be helpful to the class. For you are interested or students who are looking for information on this subject to understand the process of designing the database. If you have any suggestions or errors, the organizers would like to accept them and apologize.

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Overview:

Chem Ou Center tutorial school in Thailand

Business Domain: Education

History:



Wannasorn school was built in 1989 A.D. to be the best tutorial school in the country. For this reason, Aurum got accepted by various students and parents. This cram school has a good quality standard for teaching and services to encourage the moral and integrity of students. The building also consists of 20 schools, canteen, bookstore, dental clinic, salon. This is the first convenient non-formal school in Thailand. It's famous for the chemistry course that Chem Ou. She is the best chemistry tutor in Thailand which is proclaimed by her students around 1 million. She has established Wannasorn school. Not only that but she also has been called "The teacher who has the most students". The Ministry of Education also invited her to be a lecturer for tutoring the chemistry in various events.



Teacher Ou Uraiwan Sivakul

Teacher Ou Uraiwan Sivakul has graduated with a master's degree in chemistry from Srinakharinwirot University. She has applied to be a teacher in government service from 1976 to 1994 A.D. At the same time she also has a side job by doing a tutorial school in 1982. For this reason, she opened her own Wannasorn tutorial school (Chem Ou) first location in 1989 at Saphan Kwai.

Nowadays, Chem Ou has 29 total locations all over across the country but only at Phayathai location will have teaching onsite with Teacher Ou and others locations will be teaching by DVD or PC for personal courses of each student at another location. Till this day, Chem Ou has no learning online at home.

In 1976, Teacher Ou was working at the Thab lee suriyawong school after she graduated immediately and resigned her government service in 1978. Then, she pursued her study for Bachelor's degree and Master degree sequentially. After this, she was back to work with the government service at the Satreesethabuthbumpen school, Bangkok from 1983 to 1989. After that, she moved to teach at Samsenwittayalai while studying for a master's degree. Teacher Ou started her business about tutorial school to be another income for her while she was teaching for the government school as well. During Teacher Ou teaching at Samsenwittayalai, she also rented a nearby building for teaching for tutorial school as well. The students in the area also know more and apply to be her students because of the success of the previous year students. After that, Teacher Ou resigned from teaching at government service to pursue her tutorial school with her husband Mr. Anusorn Shivakul resigned from Samsenwittayalai as a school director.

In 1982 Teacher Ou started her first teaching at another tutorial school. Until 1986, Teacher Ou opened her own tutorial school at Central Ladprao, and it was the first time she was teaching at her own tutorial school for 3 years. In 1989, She opened Wannasorn school at Saphan kwai, Bangkok for the first time where she taught live and broadcast following with the video later on.

Around the years 2007 – 2008 moved from the branch in Siam Square to the Wannasorn building, which is the main branch at present.

In 2013, Wansorn Tutoring School Initiated the first computer-based learning (private) system with Aurum, designed and managed by C In Solutions.

Aurum is a form of online learning a private course, which students can manage by themselves 100% from course selection, payment method, convenient place to pick up books (pick up at the branch or deliver to your home) take classes online via Aurum Online Application, supported on PC/Laptop (Windows/Mac) or on Tablet/Smart Phone (iOS/Android). Students can study 24 hours a day.

Course content

- Junior high school chemistry for IJSO competition.
- Chemistry Book 1 (Grade 10) consists of atomic structure, periodic table, chemical bonds.
- Chemistry Book 2 (Grade 10) contains moles and chemical formulas, solutions, stoichiometry.
- Chemistry Book 3 (Grade 11) contains gas and gas properties, chemical reaction rate, chemical equilibrium.
- Chemistry Book 4 (Grade 11) contains acids-bases, electrochemical reactions.
- Chemistry Book 5 (Grade 11) contains organic chemistry, polymer products.
- Chemistry for University entrance examination and solving chemical problem University level.



Athiporn Sivakul (Ajarn Eve)

There is also an experimental science focus study in English or Science Inter taught live by Ajarn Athiporn Sivakul (Ajarn Eve) for elementary and junior high school students as well.

The school has three types of learning systems:

- **Live learning with teachers** by teacher Uraiwan will teach a live session only once per content at Phayathai branch to record videos for use in DVD and private learning. This type of learning has the advantage that students can interact and ask questions directly to the teacher.
- **Learning DVD format**, It is a class where learners will sit according to their seat number in the DVD room which consists of 9-12 televisions spread throughout the room. and will open the teaching video according to the cycle that the institute has announced. It is the lowest cost learning format.
- **Studying with computers (Private) with the Aurum system** (which is used in conjunction with other institutions such as Kru Soup K mathematics tutoring institute, Biobeam Biology tutoring institute, etc.) is a study where students reserve their own time to study. At the time of booking students will be able to freely log in to the Aurum classroom computer to view the video tutorials. Students will be able to rewind, pause and skip video tutorials. It is the costliest form of learning.

Wannasorn Tutoring School in current. There are 30 branches nationwide, with the main branches located on the 14th-15th floor, Wannasorn Building, Phayathai Road, Ratchathewi District, Bangkok.

Goals (vision):

Chem Ou is the leading tutoring school in Thailand recognized by students and parents for the quality of teaching and service. School's goal is to enable most students to develop their own academic achievement as needed.

“We don't believe in students who are not good at and students who are good at. They just hadn't even started trying. When we look at the worst times, students need love and appreciation from teachers. So, we never leave students who are not good at it behind.” said by Aj. Uraiwan Sivakul (Aj. Au)

Chemistry taught by Aj.Ou is a non-formal education organization (tutoring school) leading the country to enhance knowledge of chemistry at the secondary school. It has been recognized by students and parents for the quality of teaching and service. Most students are able to develop their own academic achievements as needed.

From the current situation and problems until leading to the philosophy, vision "Developing the organization, developing knowledge, morality to learners with quality, and mission and goals of the school. The school has a clear commitment to quality development in line with the school's philosophy to aim for quality for students by trying to develop the organization and personnel of all parts of the school to be more effective continuously, there has been the development of educational standards and set goals of school education standards.

Schools should be able to improve their managerial potential, the management's knowledge, competence, and the cooperation of all staff members to achieve the institution's goals, vision, and guiding principles. This can be done by mobilizing all of the organization's resources and energies to raise the institution's overall standards of quality in order to better serve the needs of the students.

The goal of achievement:

1. It is a school that is trusted and accepted by students and parents. In terms of teaching quality, management, and maintaining an efficient and standardized learning environment.

2. The school has a system in place to assess and track each employee's performance, which is then used to continuously enhance how well the school's operations meet the needs of both students and parents.

3. Students and parents have a positive attitude towards the school. Students have changed their attitude towards the subjects in a better direction, have more interest and focus on studying. Practice doing exercises regularly. Efficiently implement the study plan that is planned jointly with the staff.

4. Students are ready the ability to effectively apply the knowledge gained Can apply, solve problems and explain how to proceed with a good understanding

5. Based on societal principles, students create long-term plans to accomplish their desired objectives.

Business Process:

The enrollment process from Chem Ou Center tutorial school has responsibility for overseeing students who wish to enroll in subjects. Students are able to study on their own in two ways: First, choose a course at the counter through. Second, choose a course in the mobile app or on the website. In terms of payment, you can pay in many ways such as Krung Thai Bank, Counter Service, Online credit/debit card or Mobile Banking.

Responsibilities:

There are many tutoring schools in Thailand, Wannasorn Tutoring School or everyone called “Chem Ou” one of the most famous tutoring schools in Thailand.

1. Wannasorn Education Co., Ltd. is in the category of business operations general tutoring.
2. Improve the quality of teaching and learning for learners to have greater potential by improving the content and teaching process to stimulate the process of thinking analytically, so that students have more necessary skills according to the curriculum and can apply the knowledge gained in daily life with the inclusion of moral ethics as a guideline for conducting oneself in accordance with the desirable values of the society appropriately.
3. Improve management and service quality. The management as the organization's leader must brainstorm ideas, coordinate relationships with all parties, establish a policy to promote and develop school personnel to be able to provide impressive services to students and parents with quality. Take care of the place, the environment, and facilities are always in good working condition, look good, and have a genuine learning atmosphere.
4. Bring various technologies and innovations, including modern IT systems to help develop teaching, learning, management, and effective public relations communication.
5. Privacy policy of Wannasorn Education Co., Ltd. The company/school has put in place measures to protect the security of your personal information rigorously at every step with standards that ensure that everyone can be confident that your personal information will be maintained in the company school database only in accordance with the purposes and the framework required by law.
6. When you decide to use the services of this company / school / partner, you are deemed to have agreed to comply with this privacy policy, and future amendments.

The details are in the following topics:

1. Student's rights regarding personal data
2. Collecting personal data of students
3. Purpose of use of personal data and disclosure
4. Restrictions on use / Disclosure of personal information
5. Use of Cookies, Pixels, IP Addresses
6. The period for collecting personal information of students
7. Security of student personal information
8. Changes to privacy policy
9. Personal data protection officer
10. Contact the company / school

Activity:

1. Enrollment course:

1.1. Register at the branch

 **โรงเรียนกวดวิชาวรรณสรณ์ (เคมี อ.อุ๋)**
ใบแจ้งยอดลงทะเบียนเรียนผ่านธนาคารกรุงไทยด้วย เงินสด

รหัส (Insti Code) จำนวนเงิน (Amount)

ชื่อนักเรียน (Custo Name) เบอร์โทรศัพท์ (Ref No.1)

คำเตือน 1. กรุณาเขียนด้วยตัวบรรจงให้อ่านได้ถูกต้องชัดเจน
2. ต้องตรวจสอบรหัสที่จะลงทะเบียนก่อนลงทะเบียนหลังจากจะเห็นว่าถูกต้องแล้วจึงกรอกข้อมูล เพราะหากผิดพลาดจะทำให้ผู้ลงทะเบียนไม่ได้รับสิทธิ์ในการเข้าเรียนตามกำหนดที่ตั้งไว้เรียนจะไม่มีสิทธิ์เรียน ต้องรีบแก้ไขกับธนาคารทันทีเมื่อพบว่ามีผิดพลาด
3. ใบแจ้งยอดลงทะเบียนเรียนใช้สำหรับ ใบ ตัด : ค่าธรรมเนียม



The first type of registration is to go to a branch to request a registration paper and then enroll by payment through Krung Thai Bank.

1.2. Online platform:

1.2.1. Website <https://www.chem-ou.com/>



1. Go to Chem-Ou website

ลงทะเบียน

ชื่อ

รหัสผ่าน

ยืนยันรหัสผ่าน

ชื่อ (ภาษาอังกฤษ)

ชื่อ (ภาษาไทย)

2. Register for new students to create a new account.

เลือกสถาบันที่ต้องการเรียน

วิชา

เคมี

รูปแบบการเรียน

ทุกรูปแบบ

สอนสด

Aurum (เรียนได้ทั้งระบบ Aurum และ Aurum Online)

วันนี้จะเรียนอะไรดี บอกอะไรก็ได้เลยนะ หรือ ดูใบข่าวที่นี้

พิมพ์รหัส หรือ ชื่อคอร์ส

ค้นหาคอร์ส

 **เคมี ม.ต้น**

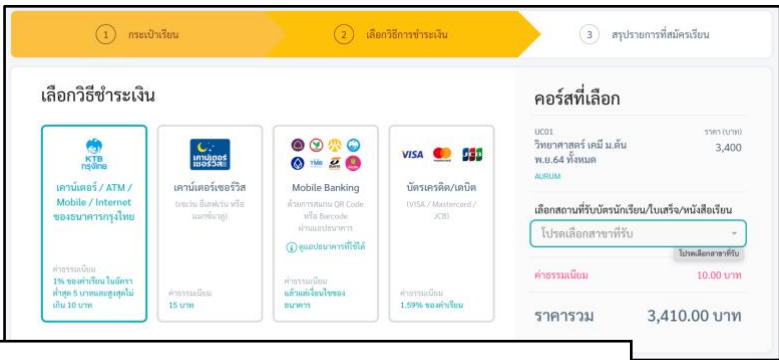
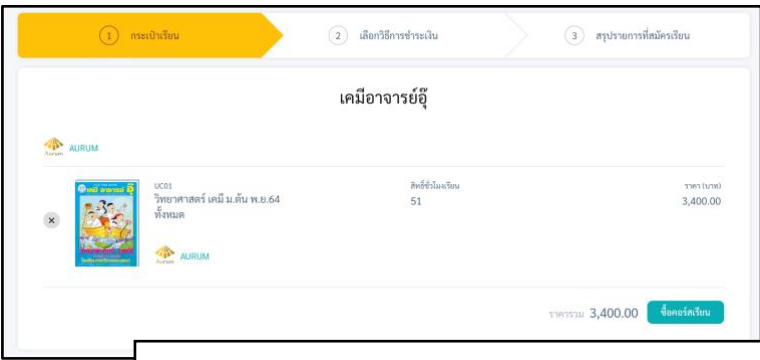
สถาบันกวดวิชา เคมีอาจารย์อุ๋

สอนโดย อ.อุ๋

จำนวนครั้งที่เรียน 16 ครั้ง

เนื้อหาในคอร์สนี้	ชั่วโมงที่สอนจริง	ชั่วโมงที่สามารถเรียนได้
เคมี ม.1-ม.3	41.00	51.00

3. Select the course and types: live, DVD, or Aurum online



4. Select the branch and choose type that you want to pay for the course.

1.2.2. ChemOu application:



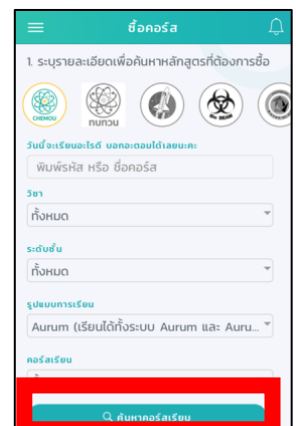
1. Download CHEMOU Application



2.1. Log in with a student account that already has an account.



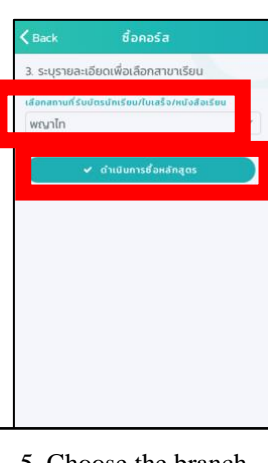
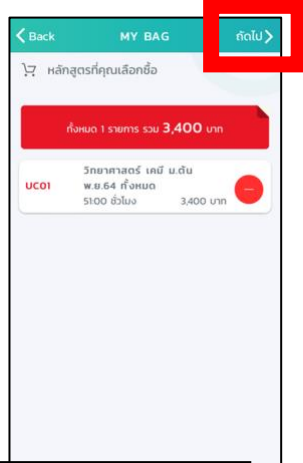
2.2 Register for new students to create a new account.



3. Select the types: live, DVD, or Aurum online that you want to study.



4. Select the course that you want to enroll.



5. Choose the branch that you want to enroll.




6. Choose type of payment that you want to pay for a course.


2. Apply for an enrollment at the company's branch.

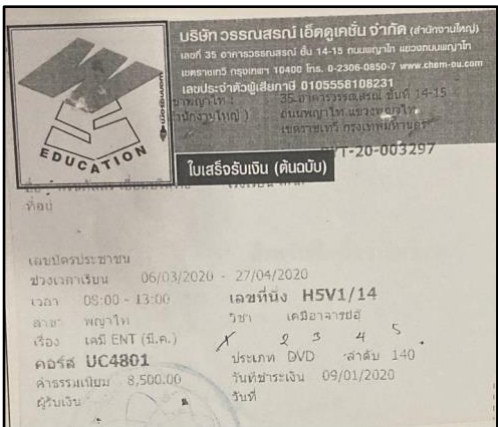
3. Payment methods: Krung Thai counter/ Counter service/ Online banking

Business Rules:

No.	Statement	Relationship
1	<p>A company has many branches. (Each branch has own by one company)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>○ ปัจจุบัน โรงเรียนกวดวิชารรณสรณ์ (เคมี อ.อุ๋) มีทั้งหมด 32 สาขา ทั่วประเทศ</p> </div>	
2	<p>One region <u>consists</u> of many branches. (Each branch is located in only one region.)</p>	1:M
3	<p>Each branch <u>contains</u> a unique name, location defined by location number, street, sub-district, district, province, and phone number.</p>	
4	<p>A staff <u>contains</u> a unique ID, Full name defined by First Name, and Last Name, and Gender.</p>	
5	<p>One staff can <u>work for</u> one branch. (Each branch can be worked by many staff.)</p>	1:M
6	<p>A staff <u>consists of</u> two main types which are the registrar and proctor.</p>	
7	<p>A student <u>contains</u> a unique ID, Full name defined by First Name, and Last Name, email, B-date, school, address, parent contact, and gender.</p>	
8	<p>Each branch <u>has</u> many students. (Many students' studies at many branches.)</p>	M:N
9	<p>One branch <u>has</u> many rooms. (A room is available in many branches.)</p> <div style="text-align: center;">  </div>	1:M

10	A room <u>occupied</u> many seats . (Many seats are occupied in many rooms.)	M:N
11	A room can <u>contain</u> at least one staff (proctor). (A staff can be contained in one room.)	1:1
12	Proctor can <u>attend</u> in multiple rooms . (Multiple rooms can be attended by many proctors)	M:N
13	A student can <u>sit</u> in one seat . (A Seat can be sat by one student.)	1:1
14	A course <u>contains</u> a unique ID, name, price.	
15	The course can <u>contain</u> many topics . (One topic <u>belongs to</u> many courses .)	1:M
16	Topics <u>consist</u> of three main types which are junior high school , senior high school , and preparation program .	
17	A class <u>contains</u> a unique room, instructor name, date, and time.	
18	A course <u>contains</u> many classes . (A class belongs to one course.) (Live, DVD)	1:M
19	Each class can be <u>allocated</u> to one room . (A room can allocate multiple classes.)	1:M
20	A book <u>contains</u> the title, publisher, price, course content, and exercises.	
21	Some courses can <u>contain</u> many books . (Many books can be contained in some courses.)	M:N
22	An instructor <u>contains</u> a unique ID, Full name defined by First Name, Last Name, and Gender.	

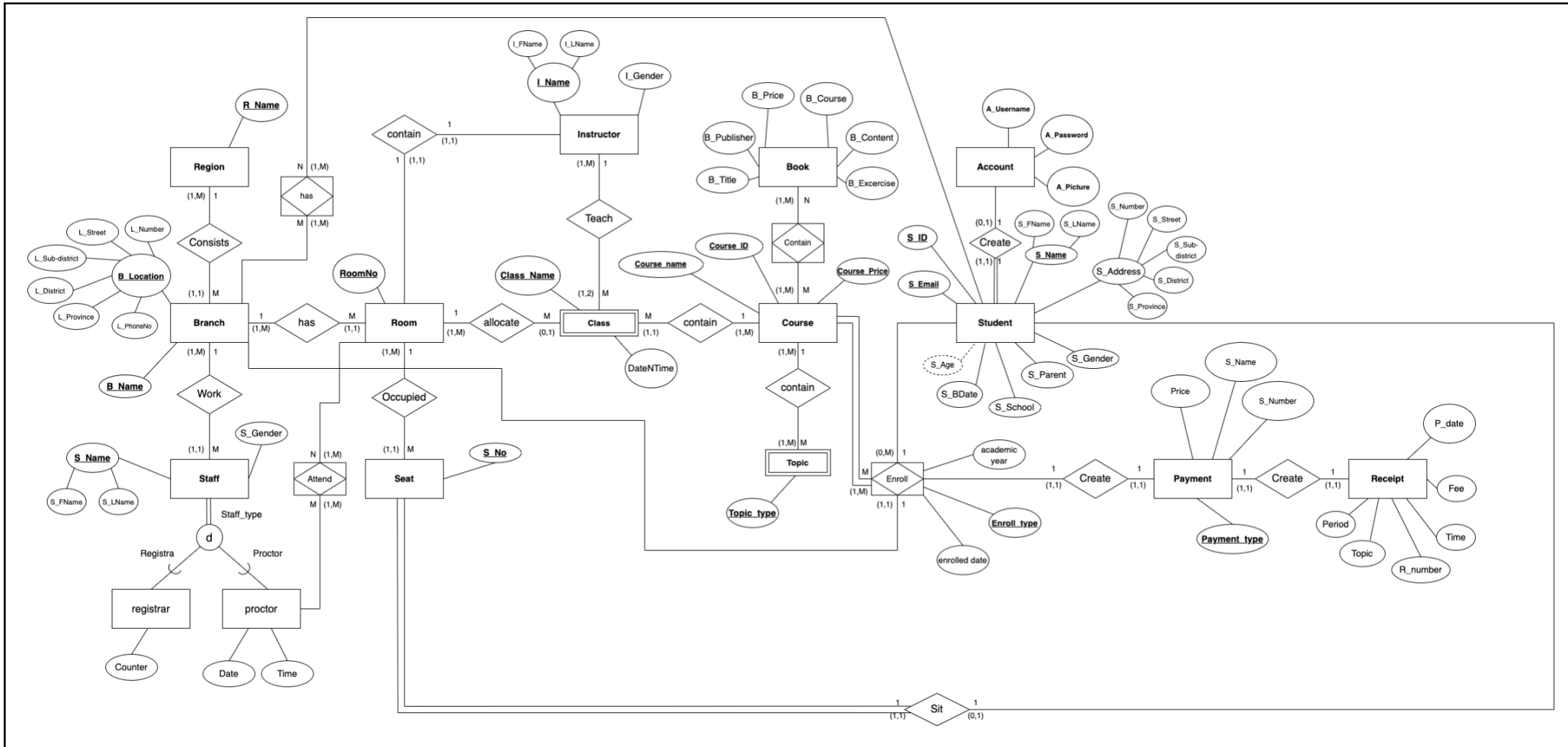
23	An instructor can <u>teach</u> many students . (A student can be taught by one or two instructors)	1:M
24	An instructor can <u>teach</u> many classes . (A class is taught by one or two instructors.)	1:M
25	A room must <u>contain</u> one instructor . (An instructor can be contained in one room.)	1:1
26	A student can <u>enroll</u> in multiple courses . (A course can be enrolled by many students.)	1:M
27	A student can <u>enroll</u> through the branch . (Each branch can be enrolled by a student.)	1:1
28	The enrollment <u>consists of</u> two main types which apply at the company's branch and apply by yourself through the company's website or application.	
29	The enrollment <u>made</u> by each student can indicate the course, academic year, and enrolled date.	1:1
30	Each student can <u>create</u> only one account . (One account can be created by one student)	1:1
31	The account <u>consists</u> of username, password, address, and picture.	
32	Each enrollment <u>creates</u> a payment (A payment can be created by an enrollment)	1:1
33	A payment <u>contains</u> unique course ID, price, student name, and student number. 	

34	Each payment <u>creates</u> a receipt (A receipt can be created by a payment)	1:1
35	Payment <u>consists</u> of three main types which are the Cash (Krung Thai counter), Counter Service, and Online banking.	
36	A receipt <u>consists</u> of the study period, time, seat number/room number, branch, topic, course code, payment type, fee, and payment date. (Live, DVD) 	

Business Constraints:

No.	Statement
1	A student can register only one account.
2	A student must indicate the shipping address which is required to deliver the book to the student's address.
3	A student can indicate only one way to make a payment (i.e., Cash (Krung Thai counter), Counter Service, and Online banking)
4	A name field may have no more than 50 characters.
5	A picture file uploaded can be no larger than 5 mb.
6	A student must select only one course for one enrollment.
7	One branch must contain at least two staff.
8	One branch must contain at least two rooms(proctor).
9	The course must contain at least one class.

Entity-Relationship Diagram



Appendix

Reference:

- [1] ChemOu, "Frequently asked questions about taking Aurum courses online," 4 March 2021. [Online]. Available: https://www.chem-ou.com/Article_News/detail/127/1. [Accessed 8 September 2022].
- [2] ChemOu, "Wannasorn Tutoring School (Chem-Ou)," 4 March 2021. [Online]. Available: <https://www.chem-ou.com/School>. [Accessed 8 September 2022].
- [3] Wikipedia, "Uraiwan Sivakul," 17 August 2022. [Online]. Available: https://th.wikipedia.org/wiki/อุไรวรรณ_ศิวัะกุล. [Accessed 8 September 2022].
- [4] ChemOu, "Terms and Conditions of Use," 4 March 2021. [Online]. Available: <https://www.chem-ou.com/Home/policy>. [Accessed 8 September 2022].