

# ASSIGNMENT 1 FRONT SHEET

## Grading grid

Qualification	BTEC Level 5 HND Diploma in Computing				
Unit number and title	Unit 14: Business Intelligence				
Submission date		Date Received 1st submission			
Re-submission Date		Date Received 2nd submission			
Student Name	Ngô Viết Duy		Student ID		GCH17574
Class	GCH0709		Assessor name		Doãn Trung Tùng
Student declaration					
I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.					
				Student's signature	
P1	P2	M1	M2	D1	D2

☐ Summative Feedback:

☐ Resubmission Feedback:

Grade:

Assessor Signature:

Date:

IV Signature:



**BI**

**KNOWLEDGE MANAGEMENT**

**BENCHMARKING**

**DATA MINING**

**DATA VISUALIZATION**

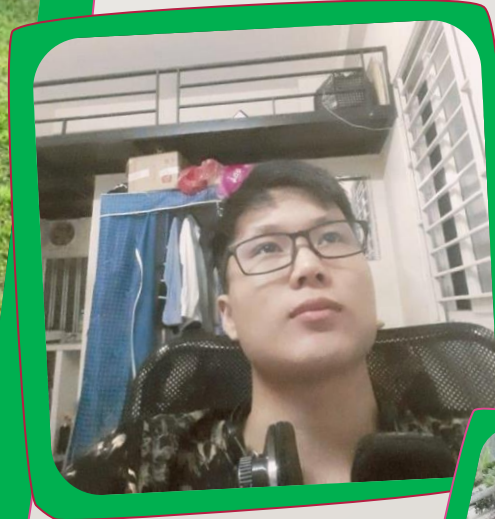
**MEASUREMENT ANALYSIS**

**REPORTING**

**COLLABORATION PLATFORM**



# OUR MEMBERS IN GROUP



Member of group:

Pham Thanh Dat : GCHI7575

Bui Dinh Kha: GCHI7486

Truong Ba Chinh: GHCI7527

Nguyen Duc Thang: GCHI7549

Ngo Viet Duy: GCHI7574



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- Introduction about the hospital
- Explain/description the business process and decision making process
- List the types of data in processes
- Software used in business process and evaluate
- Introducing 3 types of decision-making levels
- Explain which features of BI can help to make decision and tools / techniques to do that

# Introduce about our company



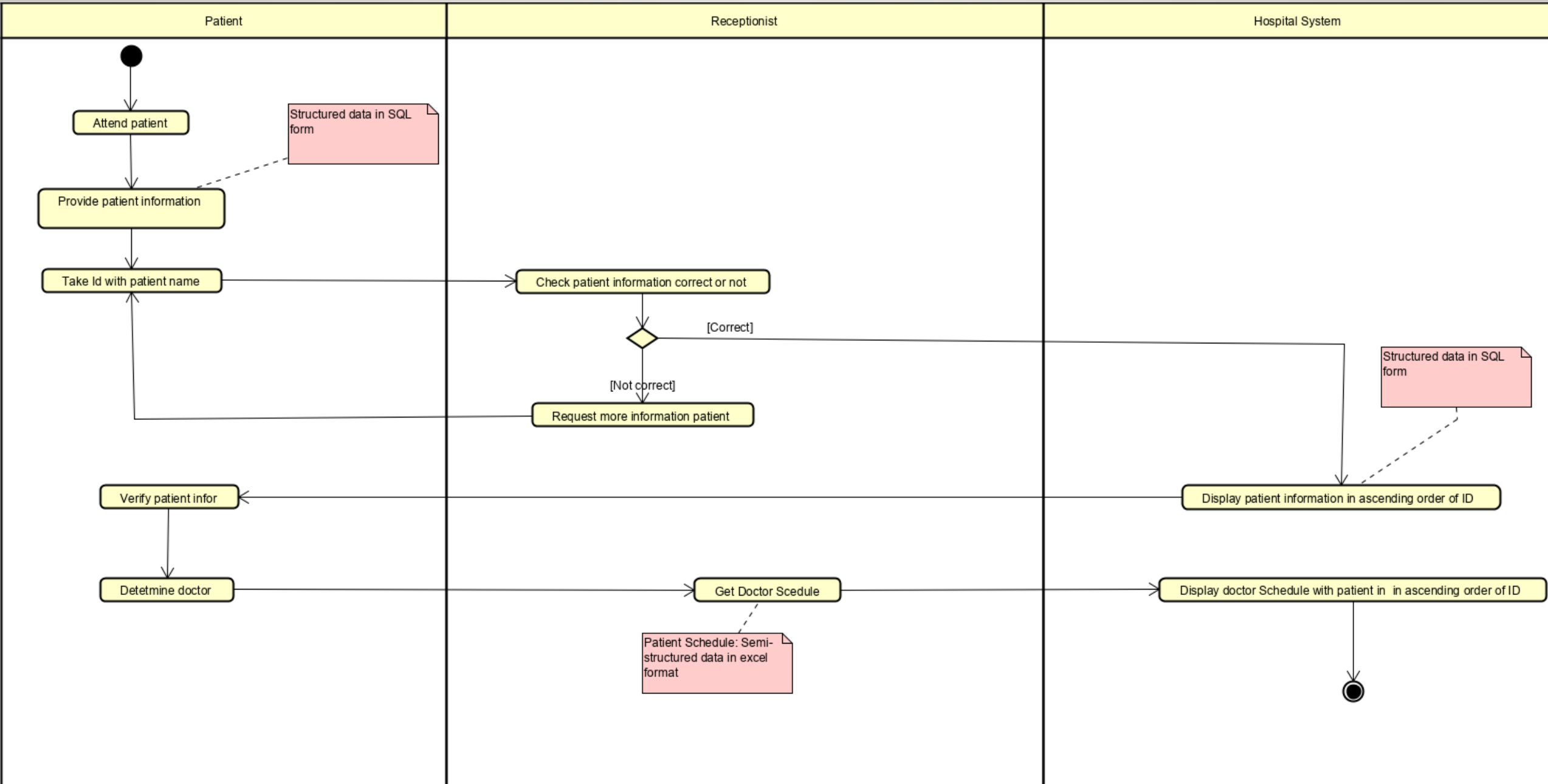
# DESCRIBE THE PATIENT CHECK-IN PROCESS.

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- Describe the patient check-in process.
- Step 1: Patient goes to hospital to take attendance for medical examination book.
- Step 2: The patient provides his examination information in "patient information" such as name, hometown, age.
- Step 3: The patient proceeds to take his or her turn ID.
- Step 4: The receptionist checks the patient's information correctly then confirms the information and transfers the information to the hospital display system to display the turn ID and their name. If the information of patient is wrong, request patient fill in again.
- Step 5: Next the patient confirms that his turn has been checked and chooses the doctor to examine him.
- Step 6: After the patient has chosen a doctor to examine. The receptionist will schedule the examination and transfer the information of the doctor and the patient to the hospital display system to display the patient's medical schedule with the doctor in turn.



# The procedure to get a medical examination number

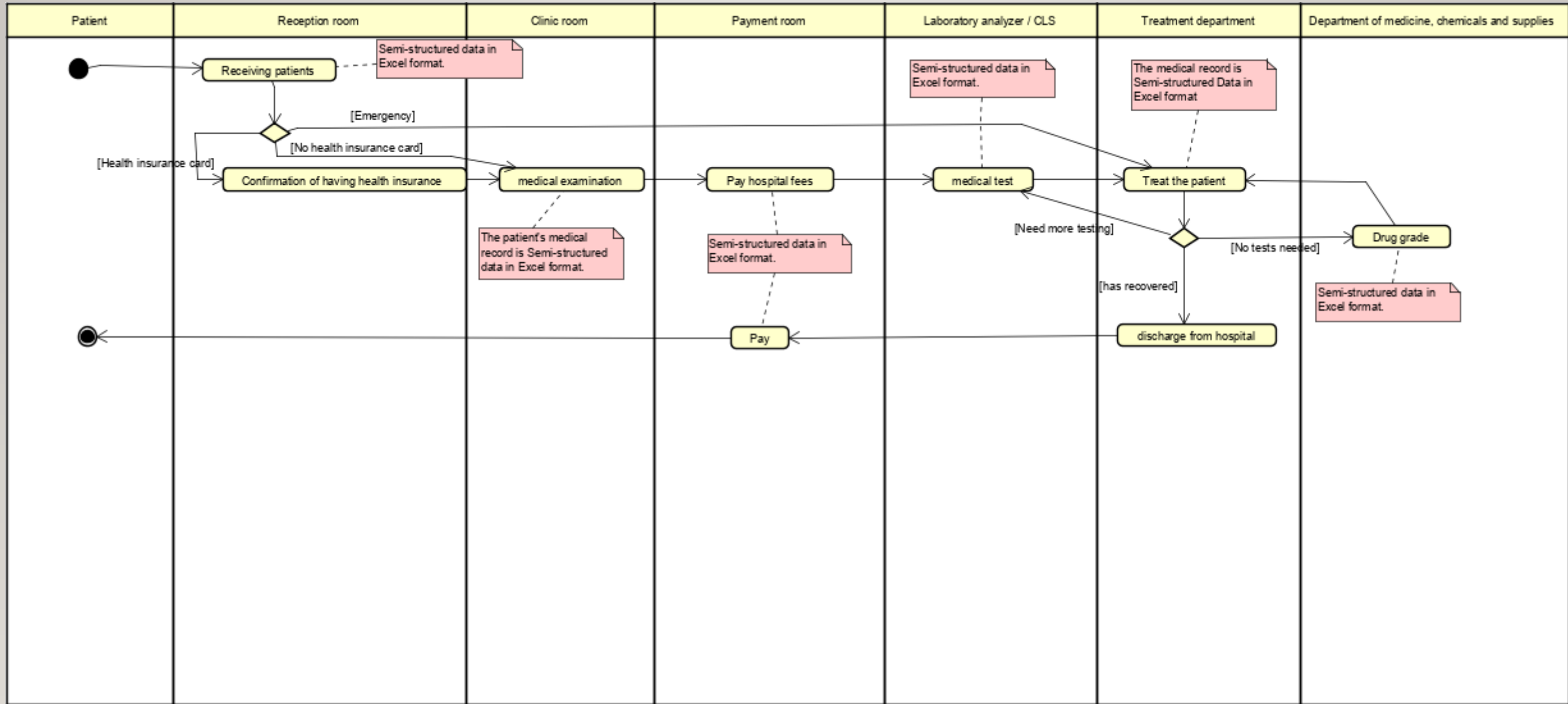


# PROCESS OF EXAMINATION AND TREATMENT OF PATIENTS:

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- Step 1: Patient.
  - Bring insurance card (if any)
  - Get medical attention as directed by your doctor.
- Step 2: Reception department.
  - Procedure and get patient information.
  - If the patient is in an emergency situation refer to the treatment department.
  - Check the patient's health insurance card.
  - If the patient has a health insurance card, the reception will mark the confirmation of the card.
- Step 3: Clinic Department.
  - Examination, diagnosis and stool of patients in the medical examination.
  - Guide patients to the test.
- Step 4: Payment room
  - The first time: Collecting hospital fees, including hospital fees, tests, medicines ...
  - 2nd: check and pay hospital fees for patients.
- Step 5: Laboratory.
  - Taking place tests for patients.
- Step 6: Treatment Room
  - Heal, diagnose and set out healing routes
  - Here the patient will be tested and taken medicine as directed by the doctor.
- Step 7: Medicine dispensing room.
  - Distribute and take prescription medication.

# Medical examination process

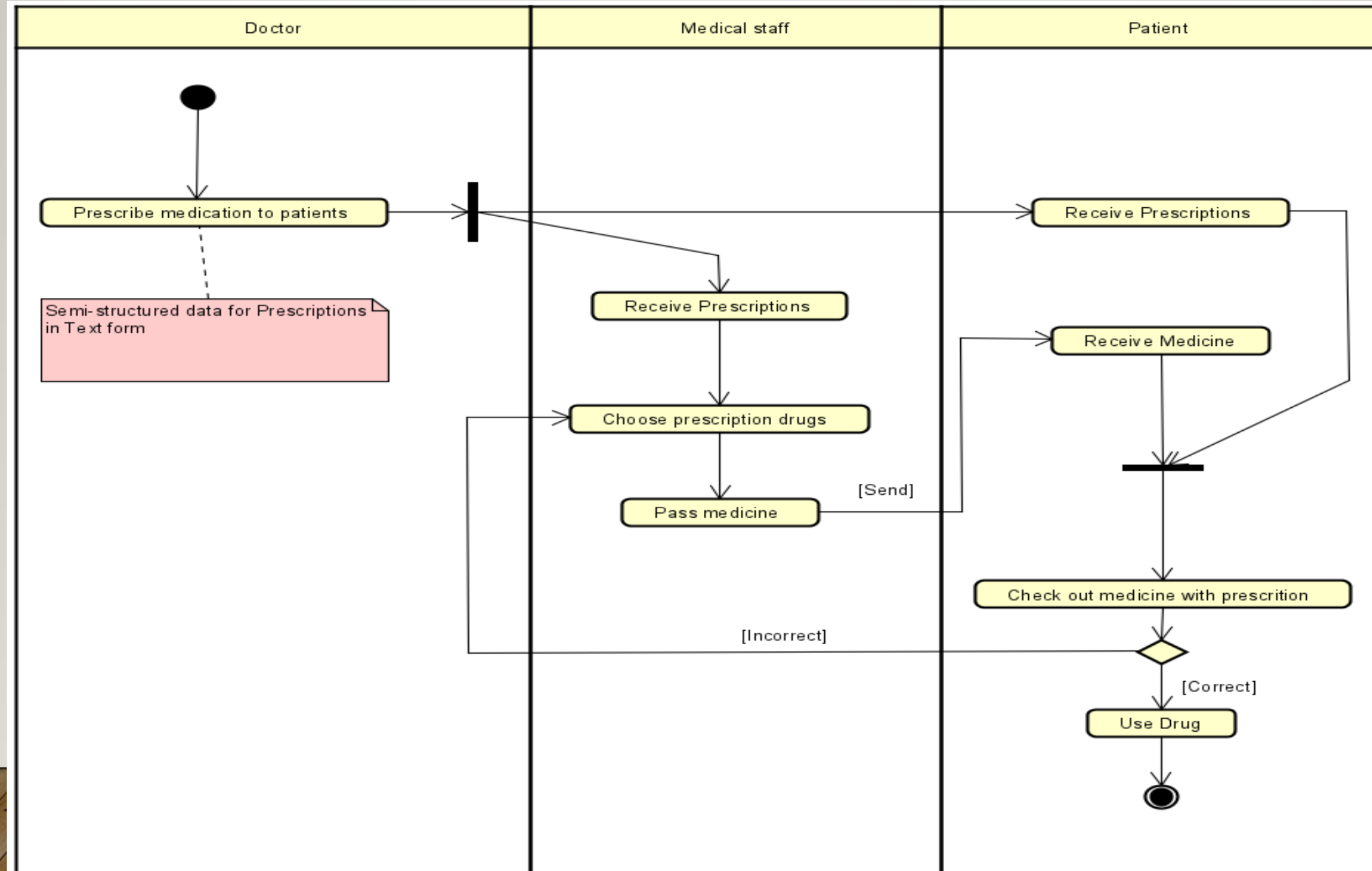




# EXPLAIN THE SELLING PROCESS

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- The process of dispensing medicine to patients begins to deploy from the Doctor.
  - 1. Doctor: Prescribe medication to patients. Afterwards, the Doctor gave the prescription at the same time to Medical Staff and Patient.
  - 2. Medical Staff: Receive a prescription from the Doctor, and proceed to Choose prescription drugs. Medical Staff will give medicine to the patient later.
  - 3. Patient: Receiving a prescription from the Doctor and receiving medicine from Medical Staff. Patient checks the medication with a prescription, if it is not on the prescription, it will be returned to the Medical Staff, else The patient will take the prescription.
  - And end the procedure for giving patients medicine !!!

# The process of selling medicine



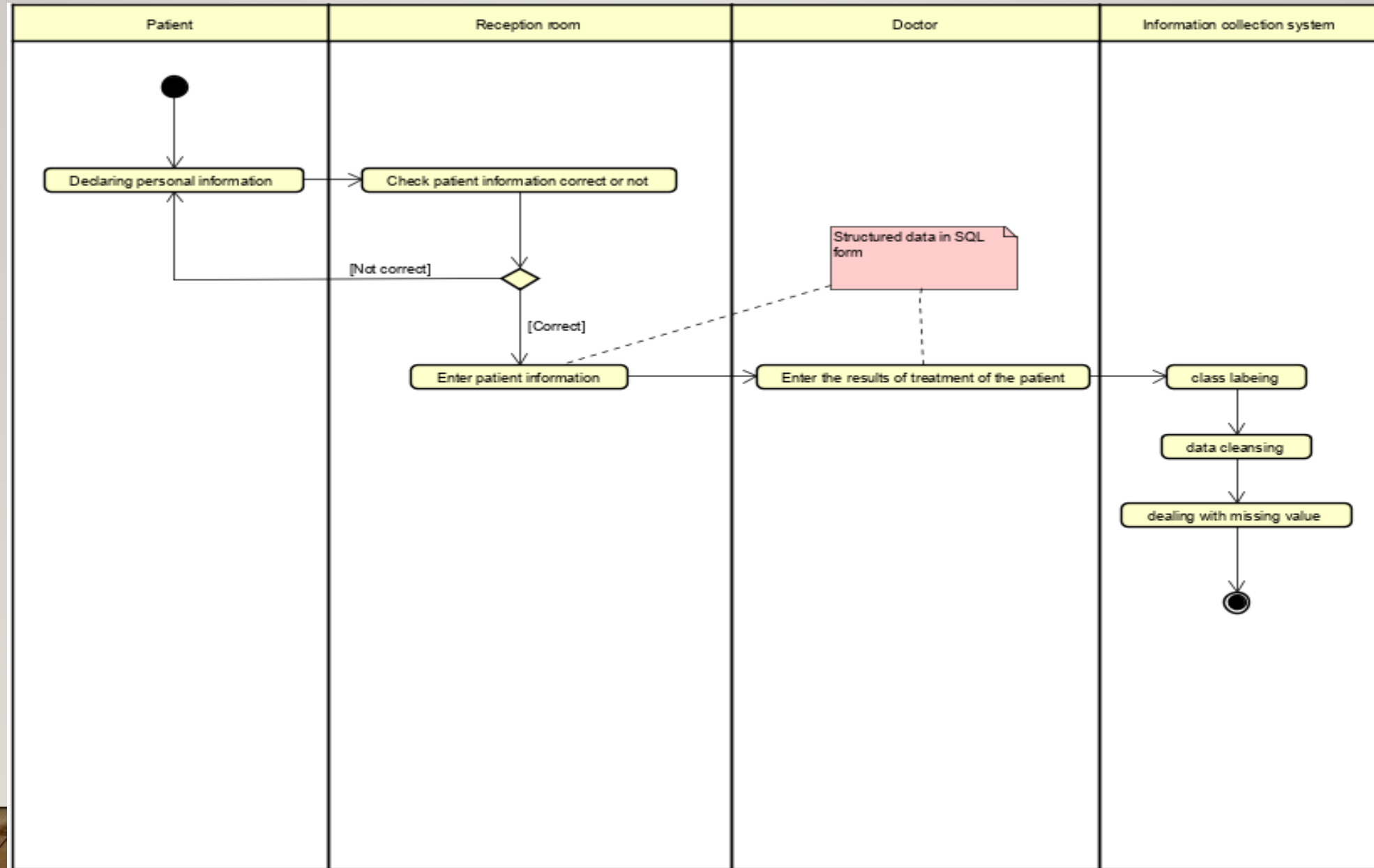
# Description of information gathering process

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- Step 1: The patient registers for examination and declares personal information to the receptionist
- Step 2: The receptionist authenticates patient information through identity card.
  - If the information is correct the receptionist will enter patient information into the system.
  - If the information is incorrect, the receptionist will ask the patient to report back
- Step 3: After the patient's results are available, the doctor will enter the results into the data collection system.
- Step 4: The data collection system will clean up the information so it is valid



# Data collection process

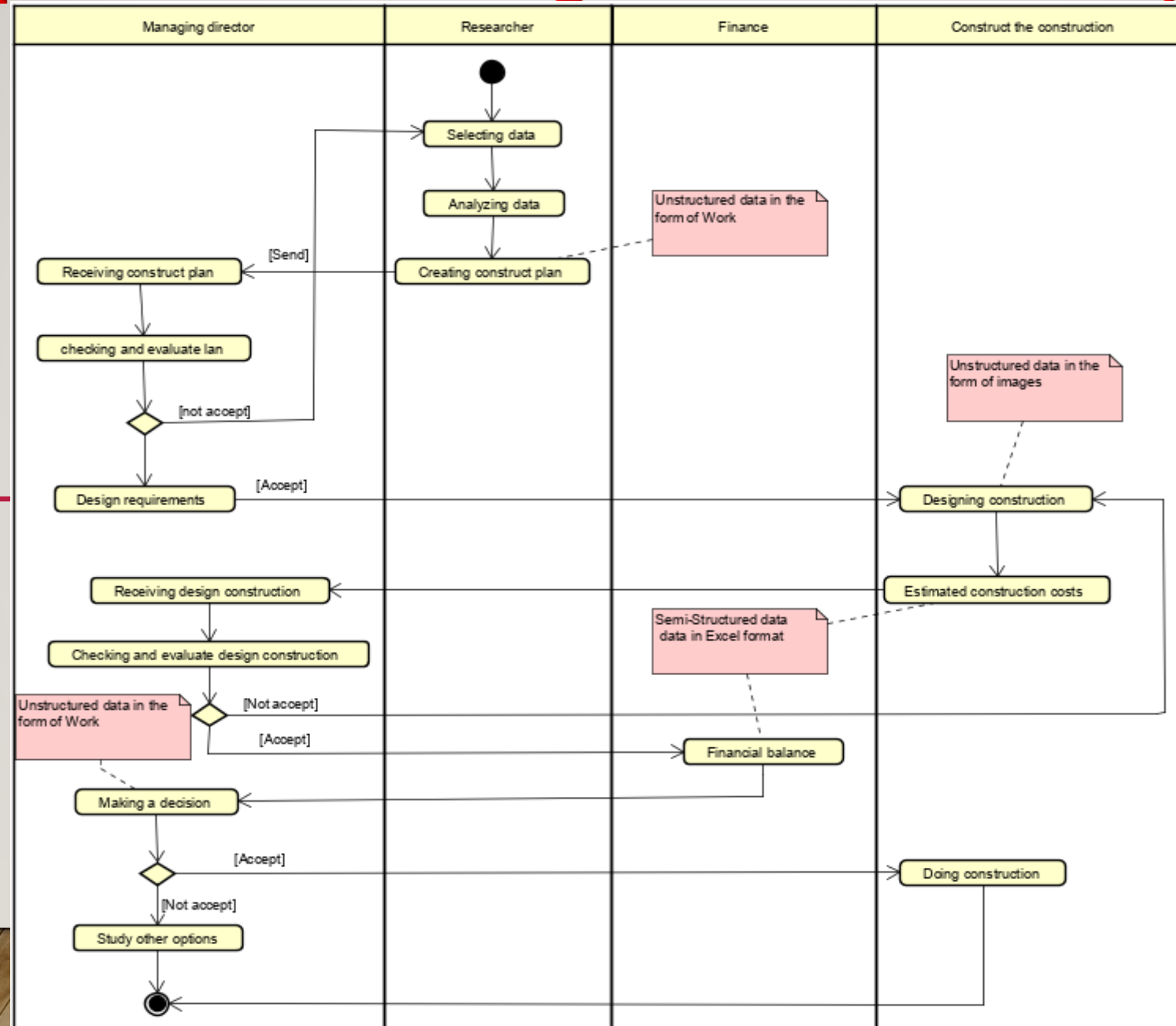


# Describe the process for deciding to build more hospitals

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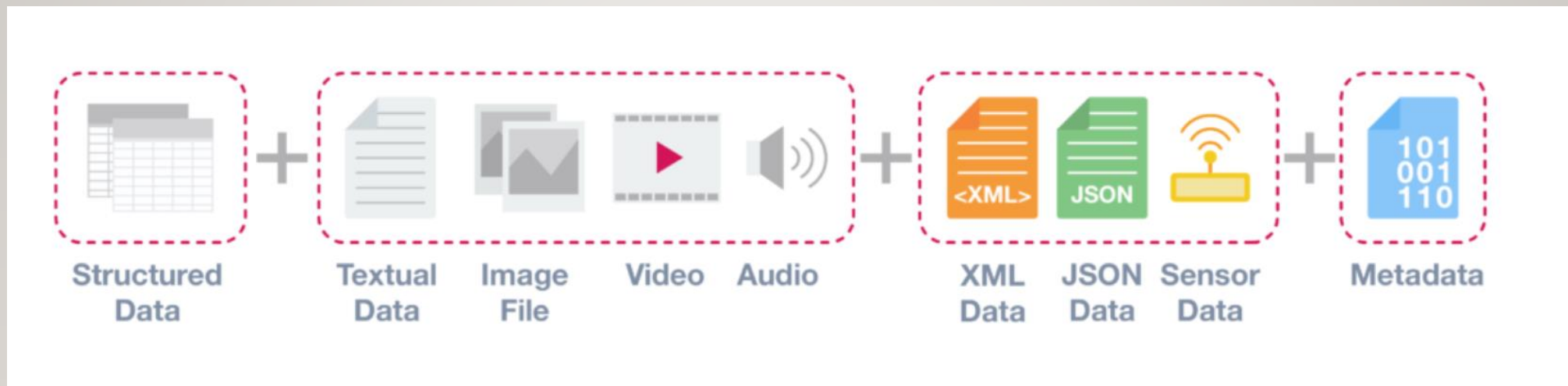
- Step 1: The researchers submit the construction plan to the executive director
- Step 2: Executives inspect and evaluate proposals
  - If the proposal is not reasonable, the director will reply to the researchers and ask them to continue the research
  - If the proposal is reasonable, the director will ask the builder to design the hospital
- Step 3: Who built the hospital design and financial estimates and sent back to the executive director
- Step 4: Executives inspect and evaluate construction designs
  - If the blueprint is unsatisfactory, the executive director will request a redesign
  - If the blueprint is perfect, the director will require a financial balance accounting for the hospital
- Step 5: The accountant will financial balance and then send the report to the director
- Step 6: Executives inspect and evaluate the financial statements of the accountant
  - If there is enough funding, the director will decide to build more hospitals
  - If insufficient funds, the director will find another hospital option

# The process of deciding to build more hospitals





# Types of data



# Structured data



Some examples of structured data in a business process are stored as SQL

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- Patient information is collected during the information collection process
- Results of examination of patients through medical examination and treatment processes
- History of medication distributed to the patient

# Semi-Structured data

The data is stored in Excel format including

- Patient information, examination results of patients





# Examples of Semi-Structured data from information collection process

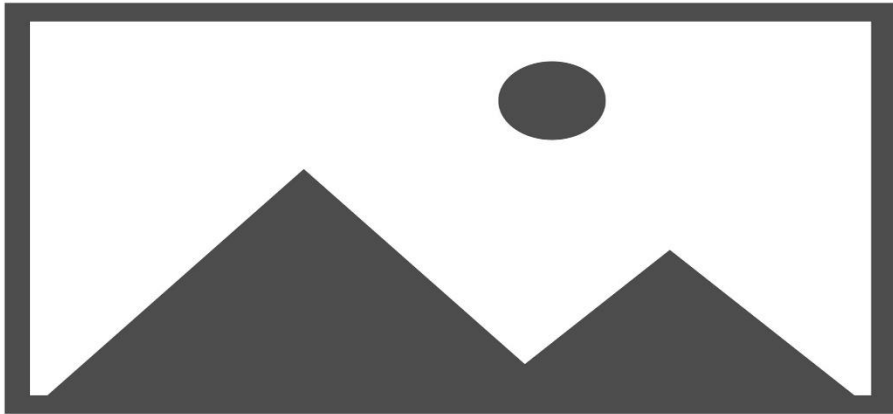
survey - Excel																													
Pham Dat																													
File Home Insert Page Layout Formulas Data Review View Help Tell me what you want to do																													
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	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	Age	Gender	Country	state	self_empt	family_his	treatment	work_inte	no_empt	remote_w	tech_com	benefits	care_opti	wellness	seek_help	anonymit	leave	mental_h	phys_heal	coworkers	superviso	mental_h	phys_heal	mental_vs	obs_conse	comments			
2	37	Female	United St	IL	NA	No	Yes	Often	25-Jun	No	Yes	Yes	Not sure	No	Yes	Yes	Somewha	No	No	Some of t	Yes	No	Maybe	Yes	No	NA			
3	44	M	United St	IN	NA	No	No	Rarely	More than	No	No	Don't kno	No	Don't kno	Don't kno	Don't kno	Don't kno	Maybe	No	No	No	No	No	Don't kno	No	NA			
4	32	Male	Canada	NA	NA	No	No	Rarely	25-Jun	No	Yes	No	No	No	No	Don't kno	Somewha	No	No	Yes	Yes	Yes	Yes	No	No	NA			
5	31	Male	United Kir	NA	NA	Yes	Yes	Often	26-100	No	Yes	No	Yes	No	No	No	Somewha	Yes	Yes	Some of t	No	Maybe	Maybe	No	Yes	NA			
6	31	Male	United St	TX	NA	No	No	Never	100-500	Yes	Yes	Yes	No	Don't kno	Don't kno	Don't kno	Don't kno	No	No	Some of t	Yes	Yes	Yes	Don't kno	No	NA			
7	33	Male	United St	TN	NA	Yes	No	Sometime	25-Jun	No	Yes	Yes	Not sure	No	Don't kno	Don't kno	Don't kno	No	No	Yes	Yes	No	Maybe	Don't kno	No	NA			
8	35	Female	United St	MI	NA	Yes	Yes	Sometime	5-Jan	Yes	Yes	No	No	No	No	No	Somewha	Maybe	Maybe	Some of t	No	No	No	Don't kno	No	NA			
9	39	M	Canada	NA	NA	No	No	Never	5-Jan	Yes	Yes	No	Yes	No	No	Yes	Don't kno	No	No	No	No	No	No	No	No	NA			
10	42	Female	United St	IL	NA	Yes	Yes	Sometime	100-500	No	Yes	Yes	Yes	No	No	No	Very diffic	Maybe	No	Yes	Yes	No	Maybe	No	No	NA			
11	23	Male	Canada	NA	NA	No	No	Never	26-100	No	Yes	Don't kno	No	Don't kno	Don't kno	Don't kno	Don't kno	No	No	Yes	Yes	Maybe	Maybe	Yes	No	NA			
12	31	Male	United St	OH	NA	No	Yes	Sometime	25-Jun	Yes	Yes	Don't kno	No	No	No	Don't kno	Don't kno	No	No	Some of t	Yes	No	No	Don't kno	No	NA			
13	29	male	Bulgaria	NA	NA	No	No	Never	100-500	Yes	Yes	Don't kno	Not sure	No	No	Don't kno	Don't kno	No	No	Yes	Yes	Yes	Yes	Don't kno	No	NA			
14	42	female	United St	CA	NA	Yes	Yes	Sometime	26-100	No	No	Yes	Yes	No	No	Don't kno	Somewha	Yes	Yes	Yes	Yes	Maybe	Maybe	No	Yes	NA			
15	36	Male	United St	CT	NA	Yes	No	Never	500-1000	No	Yes	Don't kno	Not sure	No	Don't kno	Don't kno	Don't kno	No	No	Yes	Yes	No	No	Don't kno	No	I'm not on my company's health insurance w			
16	27	Male	Canada	NA	NA	No	No	Never	25-Jun	No	Yes	Don't kno	Not sure	Don't kno	Don't kno	Don't kno	Somewha	No	No	Some of t	Some of t	Maybe	Yes	Yes	No	NA			
17	29	female	United St	IL	NA	Yes	Yes	Rarely	26-100	No	Yes	Yes	Not sure	No	No	Don't kno	Somewha	No	No	Yes	Some of t	Maybe	Maybe	Don't kno	No	I have chronic low-level neurological issues			
18	23	Male	United Kir	NA	NA	No	Yes	Sometime	26-100	Yes	Yes	Don't kno	No	Don't kno	Don't kno	Don't kno	Very easy	Maybe	No	Some of t	No	Maybe	Maybe	No	No	My company does provide healthcare but no			
19	32	Male	United St	TN	NA	No	Yes	Sometime	25-Jun	No	Yes	Yes	Yes	No	No	Yes	Somewha	No	No	Some of t	Yes	No	No	No	No	NA			
20	46	male	United St	MD	Yes	Yes	No	Sometime	5-Jan	Yes	Yes	Yes	Not sure	Yes	Don't kno	Yes	Very easy	No	No	Yes	Yes	No	Yes	Yes	Yes	NA			
21	36	Male	France	NA	Yes	Yes	No	NA	25-Jun	Yes	Yes	No	No	Yes	No	Yes	Somewha	No	No	Some of t	Some of t	Maybe	Maybe	Don't kno	No	NA			
22	29	Male	United St	NY	No	Yes	Yes	Sometime	100-500	No	Yes	Yes	Yes	No	No	No	Somewha	Maybe	No	Some of t	Some of t	No	No	No	No	NA			
23	31	male	United St	NC	Yes	No	No	Never	5-Jan	Yes	Yes	No	No	No	No	Yes	Somewha	No	No	Some of t	Some of t	No	Maybe	Yes	No	NA			
24	46	Male	United St	MA	No	No	Yes	Often	26-100	Yes	Yes	Yes	Yes	No	No	Don't kno	Don't kno	Maybe	No	Some of t	Yes	No	Maybe	No	No	NA			
25	41	Male	United St	IA	No	No	Yes	Never	More than	No	No	Don't kno	No	No	Don't kno	Don't kno	Don't kno	Maybe	No	No	No	No	Yes	Don't kno	No	NA			
26	33	male	United St	CA	No	Yes	Yes	Rarely	26-100	No	Yes	Yes	Not sure	Don't kno	Yes	Yes	Don't kno	No	No	Yes	Yes	No	Yes	Don't kno	No	Relatively new job. Ask again later			
27	35	male	United St	TN	No	Yes	Yes	Sometime	More than	No	No	Yes	Yes	No	Don't kno	No	Very easy	Yes	No	Some of t	Yes	No	Yes	No	No	Sometimes I think about using drugs for my			
28	33	male	United St	TN	No	No	No	NA	5-Jan	No	Yes	Don't kno	Not sure	No	Don't kno	Don't kno	Don't kno	Maybe	Maybe	Some of t	No	No	No	Don't kno	No	NA			
29	35	Female	United St	CA	No	Yes	Yes	Rarely	25-Jun	Yes	Yes	Yes	Yes	Don't kno	Don't kno	Don't kno	Don't kno	No	No	Yes	Yes	Maybe	Maybe	Yes	No	NA			
30	34	male	United St	OH	No	No	Yes	Sometime	26-100	Yes	Yes	Don't kno	Not sure	No	Don't kno	Don't kno	Somewha	No	No	Some of t	No	No	No	No	No	NA			
31	37	Male	United Kir	NA	No	No	No	Sometime	25-Jun	No	Yes	No	No	No	No	Don't kno	Very diffic	Yes	Maybe	Some of t	No	No	Maybe	No	No	NA			
32	32	Male	United Kir	NA	No	No	No	Never	25-Jun	Yes	Yes	No	No	No	No	Don't kno	Don't kno	Yes	Yes	Some of t	Some of t	No	Maybe	No	No	NA			
33	31	Male	United St	PA	Yes	Yes	No	Rarely	5-Jan	Yes	Yes	No	Yes	No	No	Don't kno	Somewha	Yes	No	No	No	No	No	No	Yes	NA			
34	30	male	United Kir	NA	No	Yes	Yes	Sometime	500-1000	Yes	Yes	Don't kno	No	No	No	Yes	Somewha	Maybe	No	Some of t	Yes	No	Yes	Don't kno	No	NA			
35	42	Male	United St	WA	No	Yes	Yes	Sometime	26-100	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Very easy	Maybe	No	Some of t	Some of t	Maybe	Yes	Don't kno	No	I selected my current employer based on its			
36	40	female	United St	WI	No	No	Yes	Sometime	5-Jan	No	Yes	Yes	Yes	No	No	Don't kno	Don't kno	Maybe	No	Some of t	No	No	Maybe	Yes	No	NA			
37	27	Male	United St	NY	No	No	Yes	Rarely	25-Jun	No	Yes	No	Yes	No	No	Don't kno	Very easy	No	No	Yes	Yes	Maybe	Maybe	Don't kno	No	NA			
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# Unstructured data

In the above processes unstructured data included



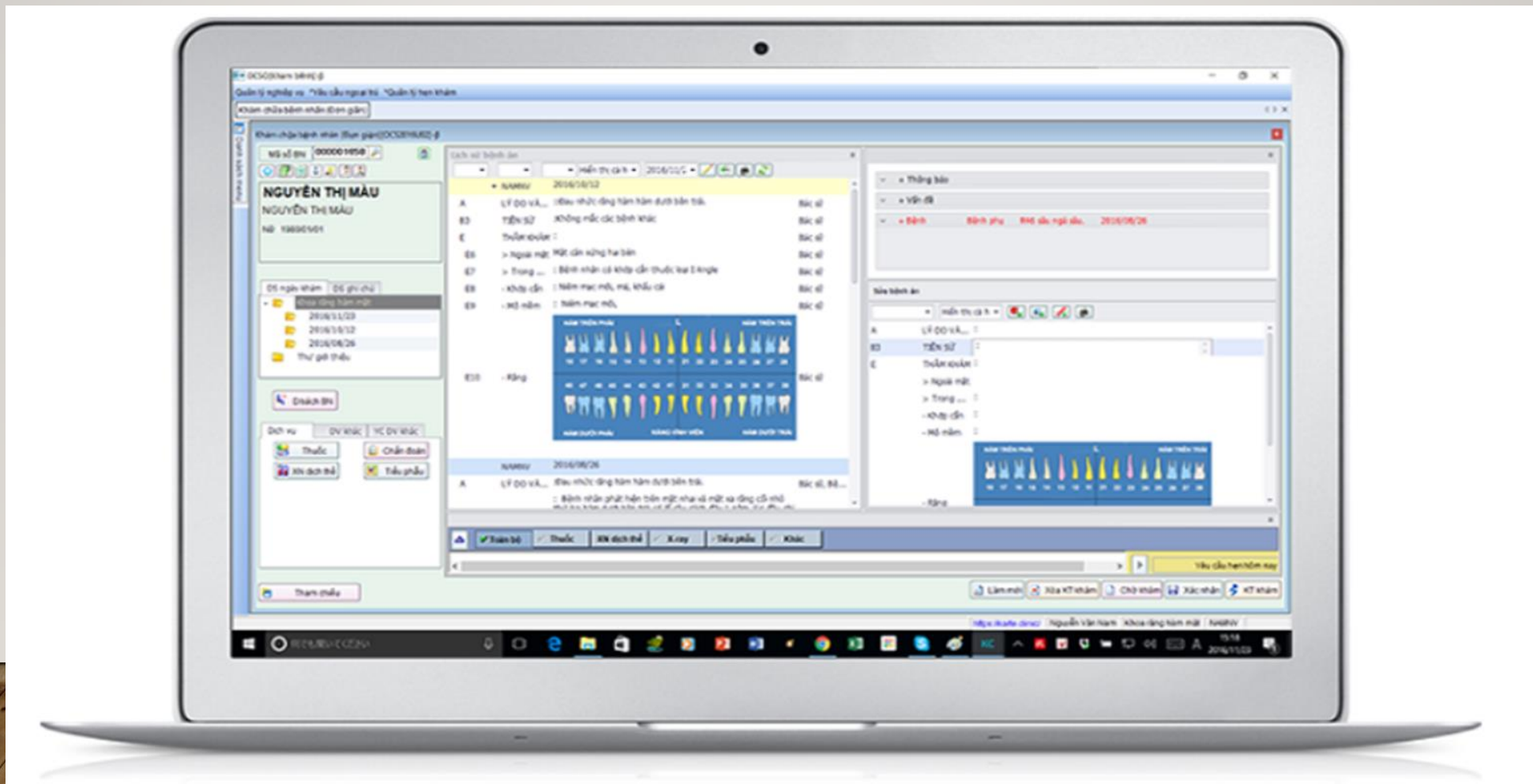
The hospital blueprints are formatted as images



Director reports are used as a Work file

# CLINIC MANAGEMENT SOFTWARE USED IN THE HOSPITAL SYSTEM

- EZ CLINIC ROOM MANAGEMENT SOFTWARE



# THE SOFTWARE PROVIDES THE HOSPITAL WITH KEY FEATURES IN CLINIC MANAGEMENT SUCH AS:

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- Receiving patients
- Subclinical management
- Hospital management
- Electronic prescription
- Pharmaceutical management
- Customer care
- Manage reports, statistics...
- Online standard meeting, remote medical examination and treatment
- Warning medicine when prescribing
- Managing medical records according to HL7, PACS standards
- Schedule an appointment for online immunization and immunization, automatic schedule reminders via email and text...



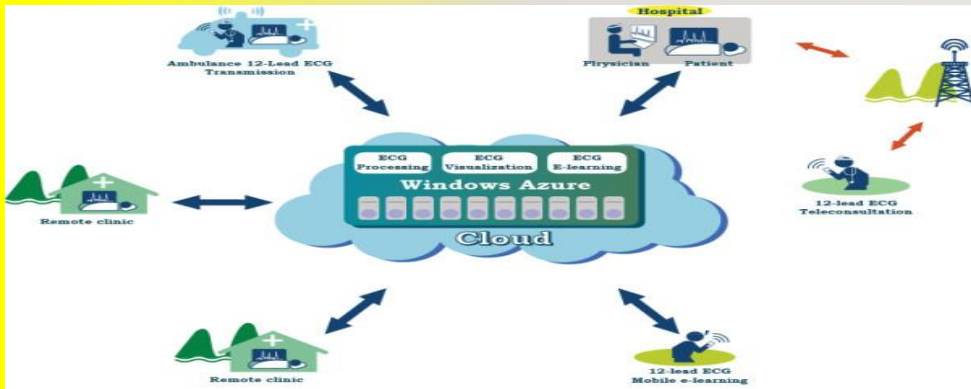


## Advantages of EZ CLINIC:

Best Software for Doctors to  
Manage their Practice



- EZ clinic - smart clinic
- EZ time - make an appointment
- EZ care - personal health management.



- Helping hospitals reduce deployment costs for clinics.
- Centralized data management, no need to worry about access speed, high security.



- Administrators can assign detailed permissions to each account.
- Employees are only allowed to perform their functions according to their duties.
- Strictly control the clinic, avoid fraud from staff

# CONS OF EZ CLINIC

- Large investment costs.
- Complex handling operations.
- Must be connected to the Internet.



# OPERATIONAL DECISIONS

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- In this, managers and employees make operational decisions for the company.
- In Operational managers include mid-level, supervisory and lower-level management.
- Decisions are only for a short time, as they depend on the activities and events of the day.

# EXAMPLE OF OPERATIONAL DECISIONS.

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- 1. Operational decisions for doctor: Make a schedule for doctors at the hospital.
- Feature of BI help to make operational decision: Operation report, operation reports allow you to easily see the best and worst performance aspects for each doctor's schedule and work schedule.
- Tool do that: "Tableau" was choose for do operation report in hospital .
- 2. Operational decision for accountants: Purchasing and selling medicines in hospital.
- Feature of Bi help to make operational decisions: Operational Reports, Operational Reports can provide a hospital executive board with a detailed summary of the number of drugs sold on a specific day of each type to assist in making decisions about which medications should be purchased for hospital.
- Tool to do that: "Microsoft BI" was choose for do operational report in hospital.



# TACTICAL DECISIONS

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- Decisions are made by officers and executives who plan for the company.
- Officers and executive directors include COO, CFO, top-level management.
- The decision is made in detail by the directors and takes effect in the medium-term with a company.

# EXAMPLE OF TACTICAL DECISIONS.

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- Decision tactical for construction in hospital: Building more clinics and medical treatment.
- Feature of BI help to make tactical decision: Ranking report, the ranking report allows hospital managers to create clinics and treatment reports with specific information, from multiple dimensions, by selecting specific criteria. Hospital managers see the best and worst performing aspects of clinics and treatment through ranking reports. This can help the hospital management decide what kind of clinic and treatment room will be built in the hospital.
- Tool to do that: The best ranking reporting tool are "Tableau" was choose for do ranking report in hospital.

# STRATEGIC DECISIONS

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- The Board of Directors will set out a strategy and plan for a company, whose members are elected by the company's shareholders.
- Strategic decisions are decisions and plans that have a lasting or important impact on the company.

# EXAMPLE OF STRATEGIC DECISIONS.

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- Strategic decision for choice director: The election of the hospital's executive director for a 5-year term.
- Feature of Bi help to make strategic decisions: What-If Analysis, What-if is feature helps hospital leaders better understand what decisions to appoint deans and directors will influence the hospital by what-if feature Use each nominee's past data to predict their potential impact on the hospital when they take control.
- Tool to do that: “Microsoft Excel” and “Tableau” had choose for do that.



# THANK YOU

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# REFERENCES

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- ecomedic, n.d. comedic. [Online]
- Available at: <https://ezpro.ecomedic.vn/>
- Gupta, A., 2017. centelli. [Online]
- Available at: <https://www.centelli.com/blog/business/differences-strategic-tactical-intelligence/?fbclid=IwAR3MR5LjYvjHRA2dykeyani3hyIeJuq8v4vgWgyKQNPpoa9iYf-PC4ttyRw>
- [Accessed 3 3 2020].
- Iyoob, J., 2012. etechgs. [Online]
- Available at: <https://www.etchgs.com/blog/business-intelligence-helps-strategic-decision-making/?fbclid=IwAR29QT9xYpQvpxymV1VEHUafZPfdBMbAckQAD5uzooqweflidd3pUWuQzrdw>
- [Accessed 3 3 2020].