



# STIKI

SEKOLAH TINGGI INFORMATIKA & KOMPUTER INDONESIA

# INFORMATION SYSTEMS ANALYSIS & DESIGN

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## System Analysis (part 2)



# References

Whitten, J.L., Bentley, L.D. (2011), Chapter 5, *Systems Analysis and Design Methods* (p. 6-41, 7<sup>th</sup> ed.), McGraw Hill Irwin.



# Discussion 1

To begin with  
the system analysis activities,  
what would you do first?



## Discussion 2

Now, you have identified  
the problems.  
What would you do next?



# 3

## Requirements Analysis Phase

*"What do the users need and want?"*

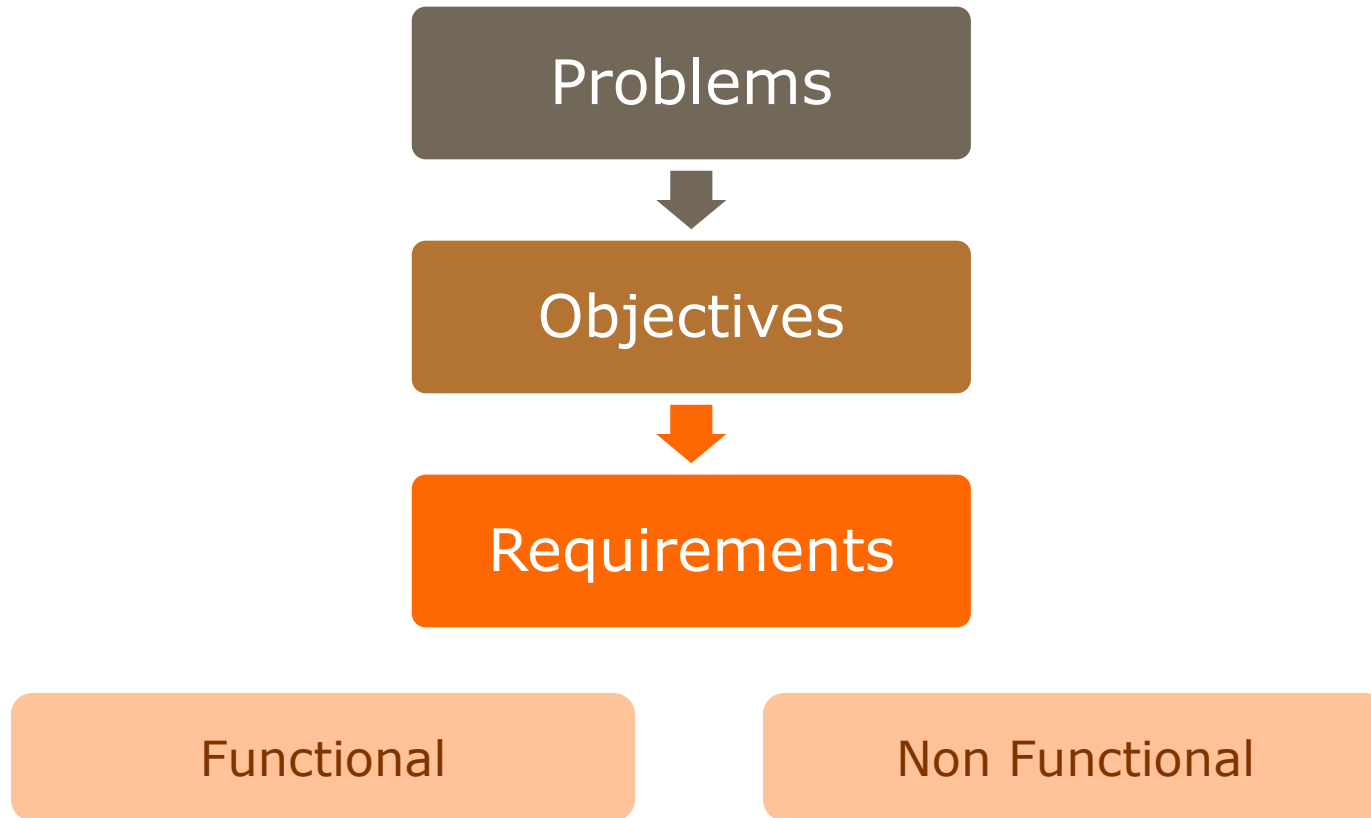


# Requirements Analysis

1. Identify system requirements
2. Prioritize system requirements
3. Update/refine project plan
4. Communicate requirements statement



# Main Tasks





# Functional vs Non-functional

## Functional Requirements

- What the system should do
- How the system should react to inputs
- How the system should behave in particular situations

## Non-functional Requirements

- Timing & development constraints
- Applied standards
- Apply to system as a whole





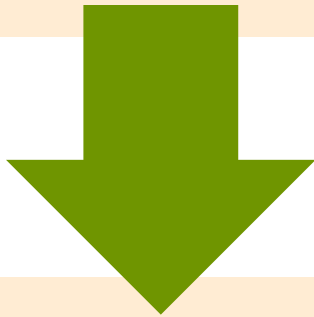
# Functional Req. (sample)

- A user shall be able to **search the appointments lists** for all clinics.
- The system shall **generate each day, for each clinic, a list of patients** who are expected to attend appointments that day
- Each staff member using the system **shall be uniquely identified** by his or her eight-digit employee number



# Non-functional Req. (sample)

The system **should be easy to use by medical staff** and should be organized in such a way that **user errors are minimized**.

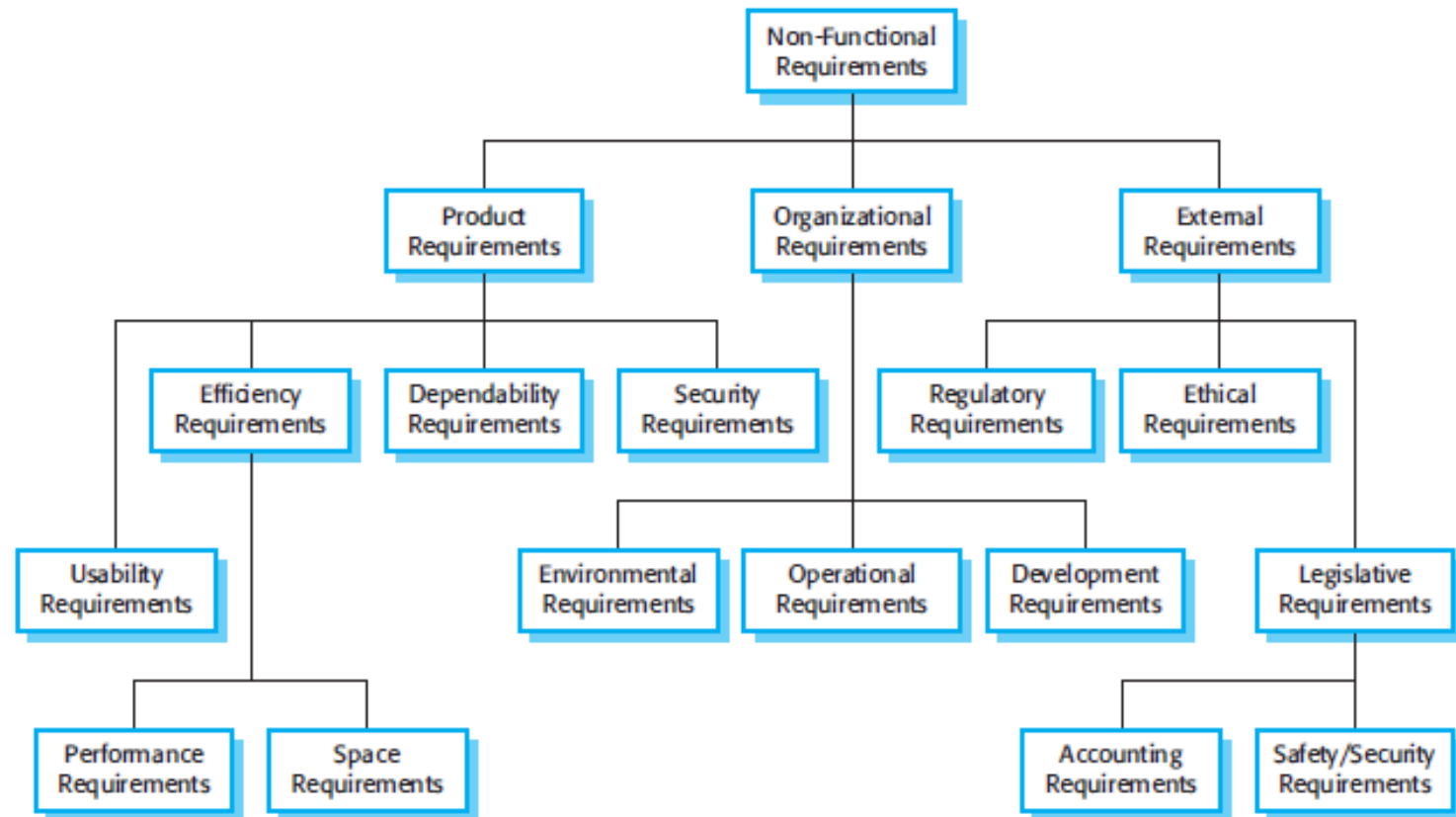


*Staff shall be able to use the system functions **after 4 hours of training**.*

*After the training, the average number of errors **shall not exceed 2 per hour**.*



# Non-Functional Req.





# Non-Functional Metrics

Property	Measure
Speed	Processed transactions/second User/event response time Screen refresh time
Size	Mbytes Number of ROM chips
Ease of use	Training time Number of help frames
Reliability	Mean time to failure Probability of unavailability Rate of failure occurrence Availability
Robustness	Time to restart after failure Percentage of events causing failure Probability of data corruption on failure
Portability	Percentage of target dependent statements Number of target systems



# 4

## Logical Design Phase

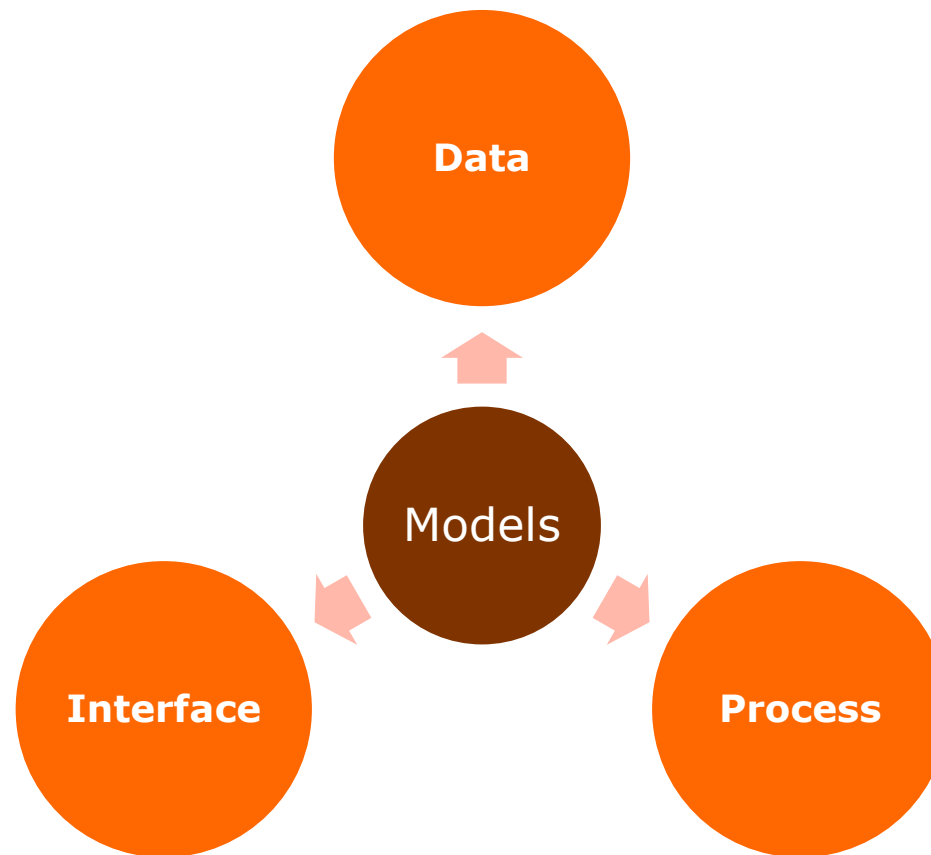


# Logical Design

1. Structure functional requirements
2. Prototype functional requirements
3. Validate functional requirements
4. Define acceptance test cases



# Logical Models





# 5

## **Decision Analysis Phase**





# Decisions Analysis

1. Identify candidate solutions
2. Analyze candidate solutions
3. Compare candidate solutions
4. Update the project plan
5. Recommend a system solution



# Candidate Solution (sample)

Characteristics	Candidate #1
<b>System</b>	Buy OTS & customize
<b>Benefits</b>	Quicker
<b>Servers</b>	Win Server 2008 on Xeon
<b>Tools</b>	C# .NET, EA
<b>Software</b>	Package
<b>Data Processing</b>	Client server
<b>Output</b>	Screen, printer, QR code
<b>Input</b>	Keyboard, scanner
<b>Storage</b>	MS SQL Server 100GB Part



# Feasibility Matrix (sample)

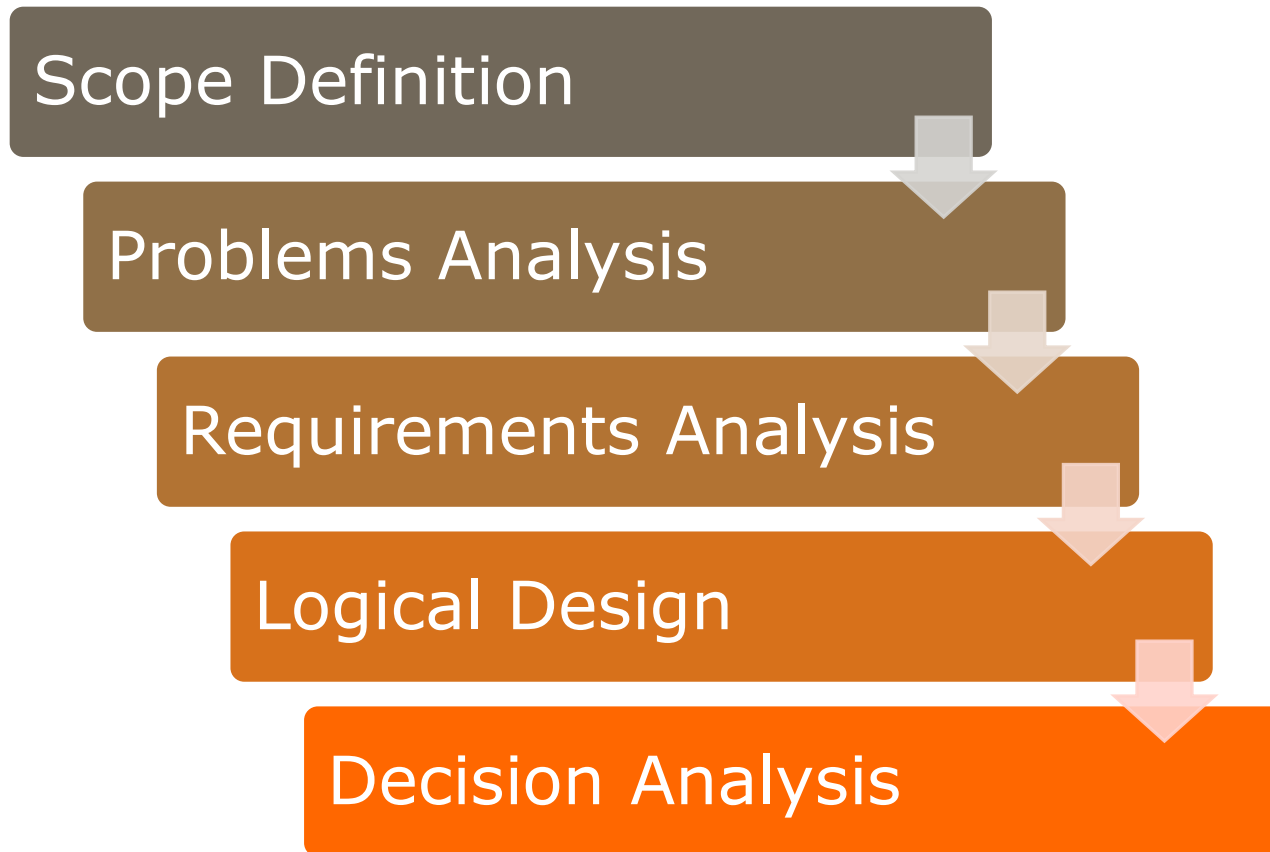
Criteria	Weight	Candidate #1	Candidate #2
Technical feasibility	30%	60	100
Economic feasibility	30%	50	95
Schedule feasibility	10%	60	85
Operational feasibility	30%	95	80
<b>Rating</b>		<b>60.5</b>	<b>92</b>



# **Systems Analysis Review**



# Systems Analysis Phases





# Thank you!

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