System Development Methods
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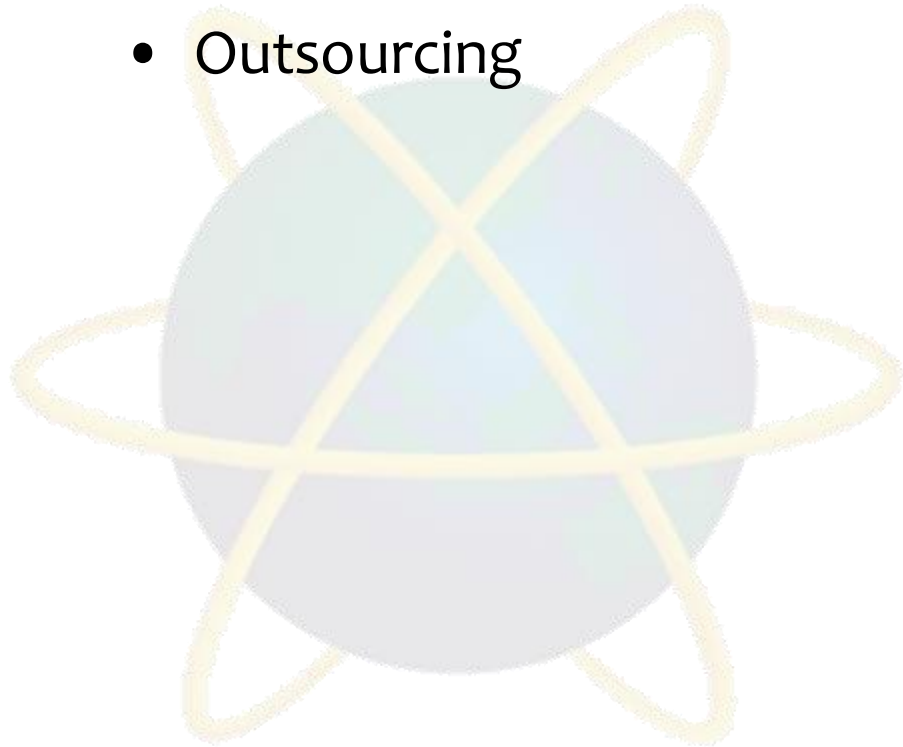
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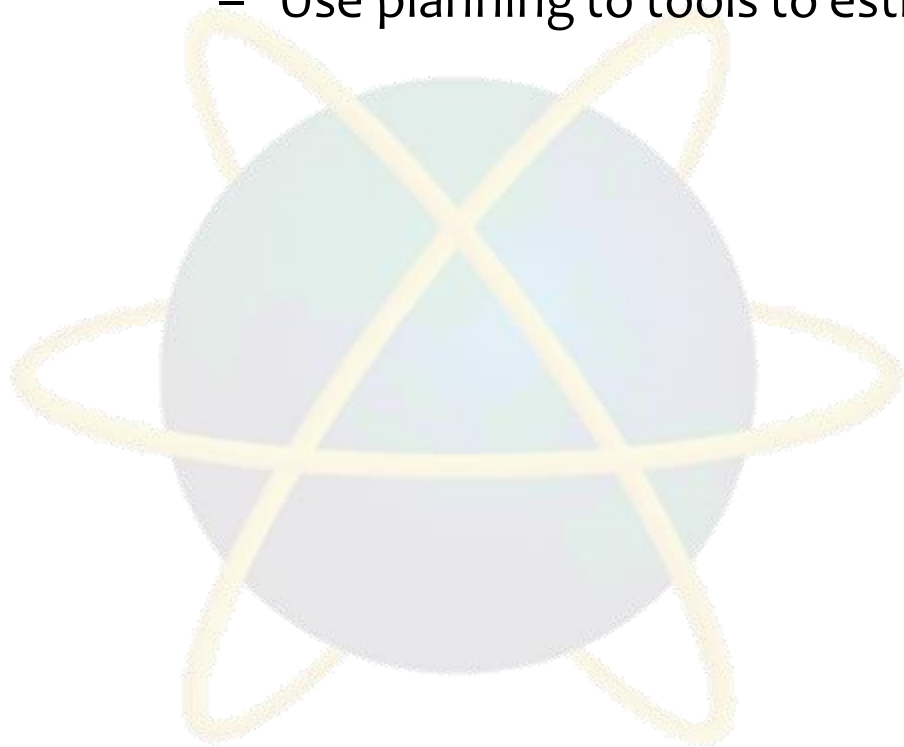
System Development Planning

Part 1

Topic & Structure of the Lesson

- Initial Study
- Feasibility Study
- Resource Planning
- Outsourcing

Learning Outcome

- At the end of the module, you should able to:
  - Explain the initial process of a software development project planning.
  - Use planning to tools to estimate resources.

Key Terms you must be able to use

- If you have mastered this topic, you should be able to use the following terms correctly in your assignments and exams:

    - Initial Study
    - Feasibility Study
    - Resource planning tools
    - Outsourcing options

IS Planning Strategies

- Problems Statement
- Initial Study
- Feasibility Study
- Requirements Engineering
- Resource Planning
- Costing and Scheduling
- Outsourcing Options

Problem Statement

- Every new projects starts to solve some type of 'problem' with a 'current process'.
  - Defect to the old system
    - Bugs, user complaints, unable to support current increasing demand, etc.
  - Opportunity or need for upgrade
    - directive, competition, available budget, available new technology, etc.

- 'problems' usually reported by users / customers using the old/existing system.

Initial Study
Process

- Conducted by expert / consultant on the existing (old) system
  - System Analyst, System Engineers
- Study '**Problem Statement**'
  - Verify problem which are reported to the existing system.
  - Find the **source / cause** of the problem
- Narrow down solutions to solve problem.
  - Come up with **solutions**.
  - Options – to upgrade, replace, etc.
- Create **Project Proposal**.
  - Present suggested solution to customer / business owner

Quick Quiz

- What does a **Project Proposal** contain?
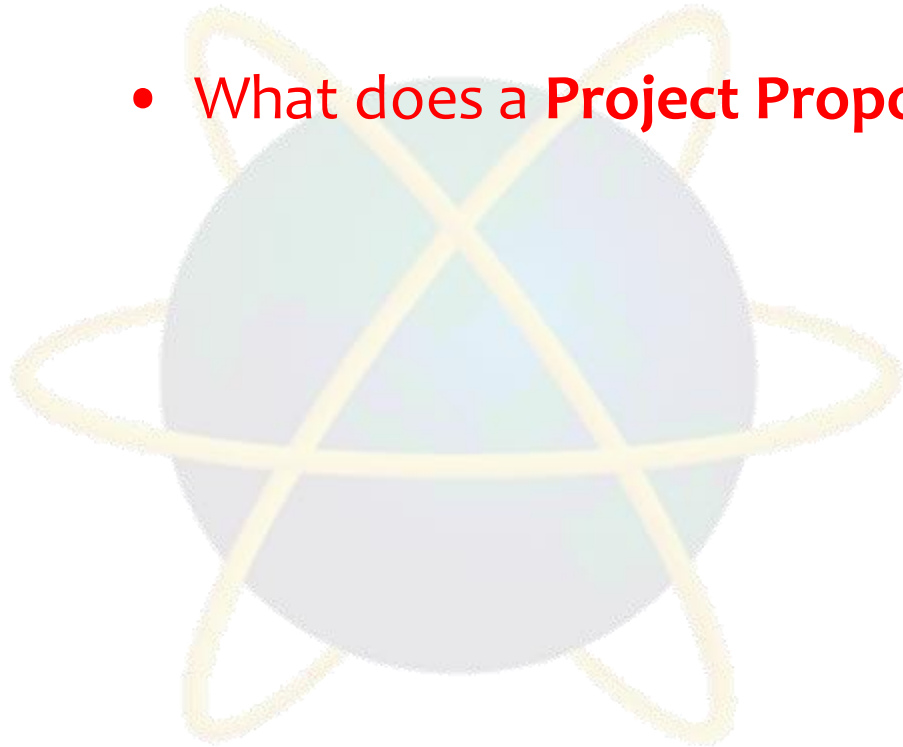
Feasibility Study

- Conducted by potential developer

- Project owner hires **Developer**
  - IN-HOUSE developers or
  - VENDORS hired through *project tendering process.*

- Developer conducts FEASIBILITY STUDY to see if the project can be done according to owner's **requirements**.

- Output – **Feasibility Study Report**

Common types of Feasibility Study

- Technical feasibility

- Schedule feasibility

- Economic feasibility

- Operational feasibility

- Legal feasibility

- Cultural feasibility, etc

The importance of Feasibility Study

- When to do FS?

  - **Before starting a project.**

  - **When the main requirements are clear.**

- When are all projects feasible ?

  - **When most of the facts analysed had a positive outcome, such as profit, benefits, solutions, etc.**

- What happens when the FS fails (negative outcome)?

  - **The project maybe suspended / scrapped.**

  - **Vendors might not take up the project.**

Quick Quiz

- What are the **objectives** of doing Feasibility Study?
- **Who** would be involved in a **Feasibility Study** for a new website at APU?
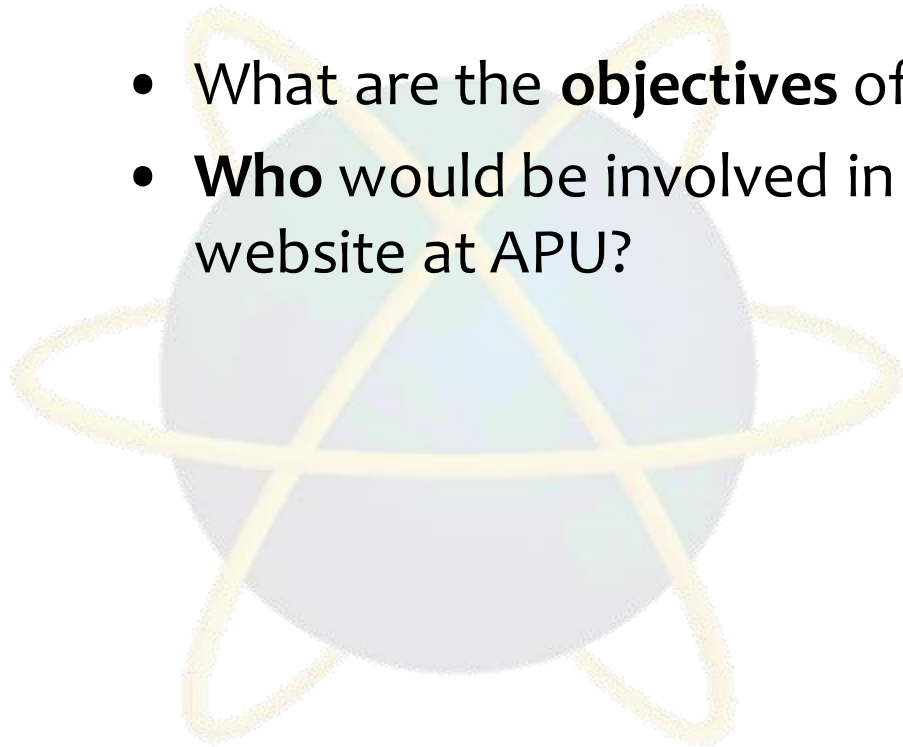
Resource Planning
Quick Quiz

- What are the '**resources**' in a typical IT Project?
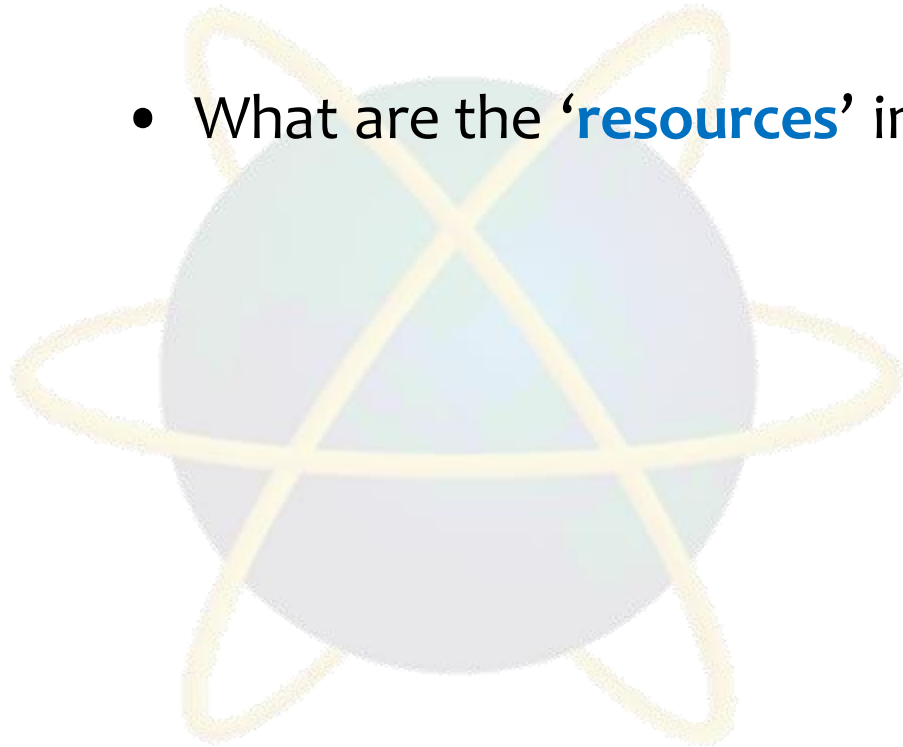
Resource Planning

- Resource Planning is important, especially to estimate **time and cost** of the project

- Normally done at the early stage of planning, **with clear requirements**

- Involves activities;
  - Define scope
  - Human resource planning
  - Resource costing
  - Resource scheduling and job delegation
  - Equipment planning – Hardware, software, etc
  - Resource RISK Planning

Resource Planning … cont

- Tools used for Resource Planning

  - **PERT Chart & Gantt Chart** – For project activities and human resources planning

  - **Work Break-down Structure** - For tasks and multiple resources assigned to each.

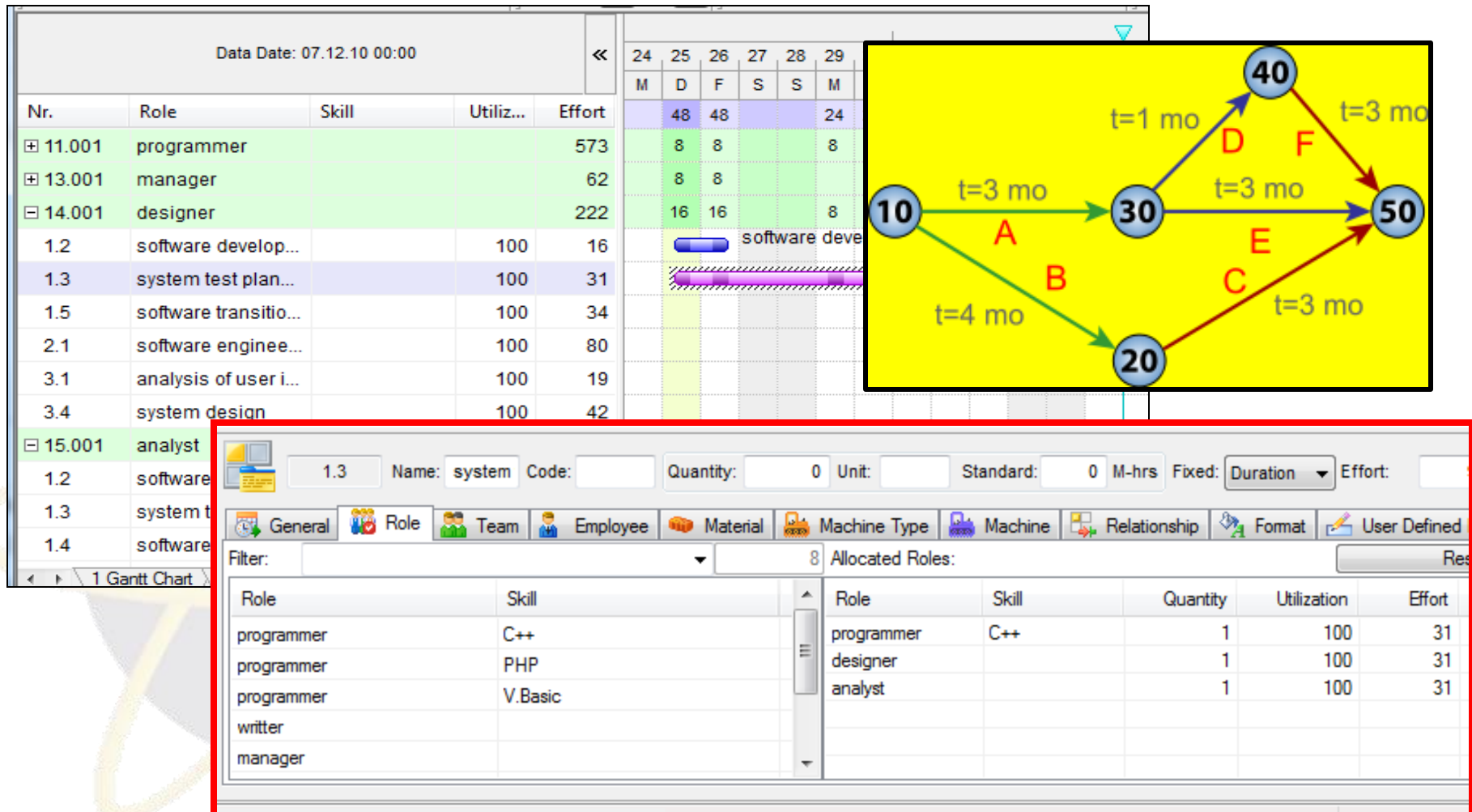 - **Hierarchy Task Analysis** - For task restructuring
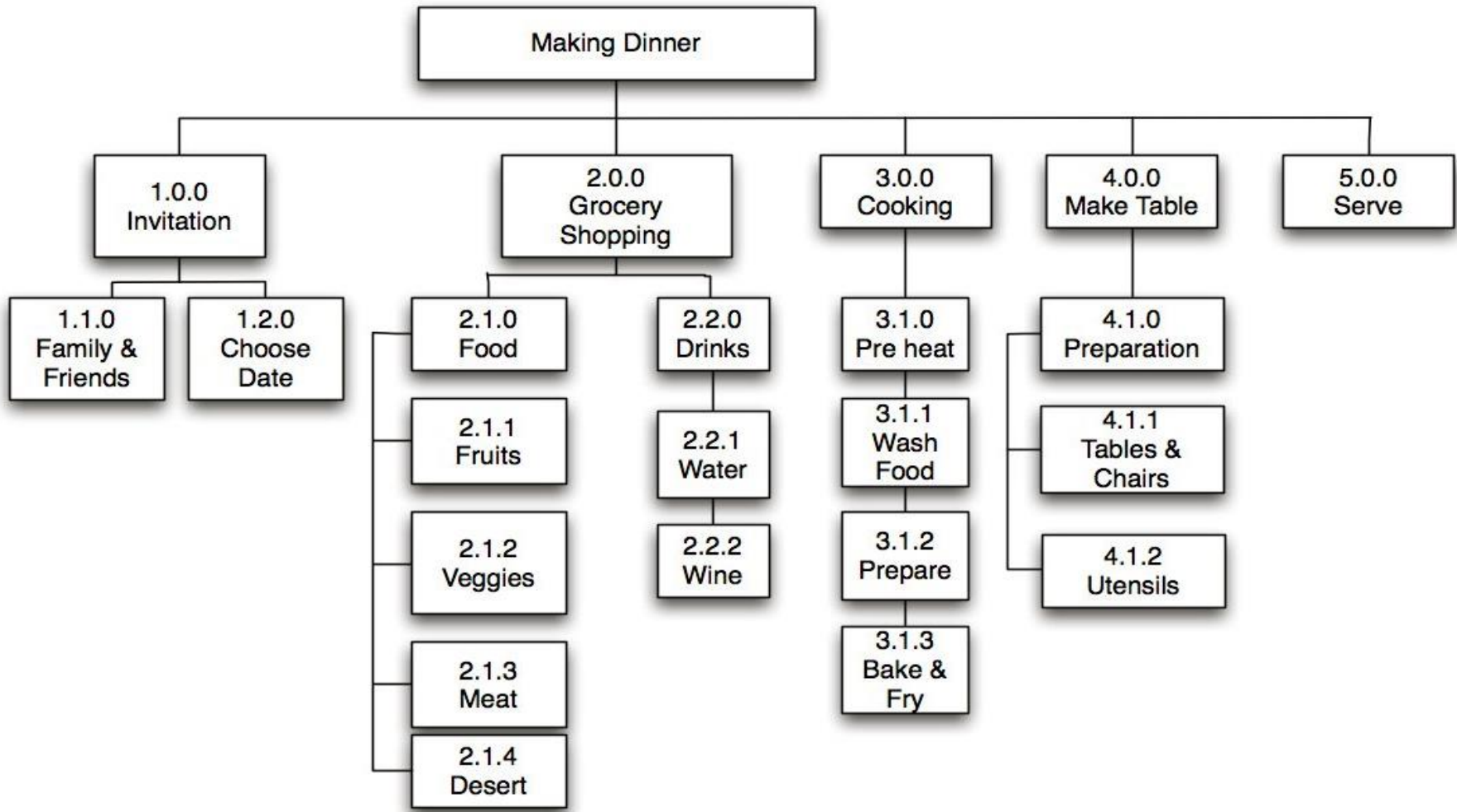
Resource Planning
PERT Chart & Gantt Chart

Nr.	Role	Skill	Utiliz...	Effort
⊞ 11.001	programmer			573
⊞ 13.001	manager			62
⊟ 14.001	designer			222
1.2	software develop...		100	16
1.3	system test plan...		100	31
1.5	software transitio...		100	34
2.1	software enginee...		100	80
3.1	analysis of user i...		100	19
3.4	system design		100	42
⊟ 15.001	analyst			
1.2	software			
1.3	system t			
1.4	software			

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24	25	26	27	28	29
M	D	F	S	S	M
	48	48			24
	8	8			8
	8	8			
	16	16			8

software deve

1 Gantt Chart

| | 1.3 | Name: system | Code: | Quantity: | 0 | Unit: | Standard: | 0 | M-hrs | Fixed: Duration ▾ | Effort: |

General | Role | Team | Employee | Material | Machine Type | Machine | Relationship | Format | User Defined

Filter: ▾ 8 Allocated Roles:

Role	Skill		Role	Skill	Quantity	Utilization	Effort
programmer	C++		programmer	C++	1	100	31
programmer	PHP		designer		1	100	31
programmer	V.Basic		analyst		1	100	31
writter							
manager							

Resource Planning
Work Breakdown Structure (WBS)

Resource Planning
Hierarchy Task Analysis

Ex. HTA Buying a movie ticket online
0. In order to buy ticket
1. Search theater
2. Search movie   2.1 digital soundtrack   2.2 3d
3. Add movie
4. Choose time
5. choose kind of seats 5.1 deluxe
     5.2 premium
     5.3 sofa
6. enter your details
7. enter payment details
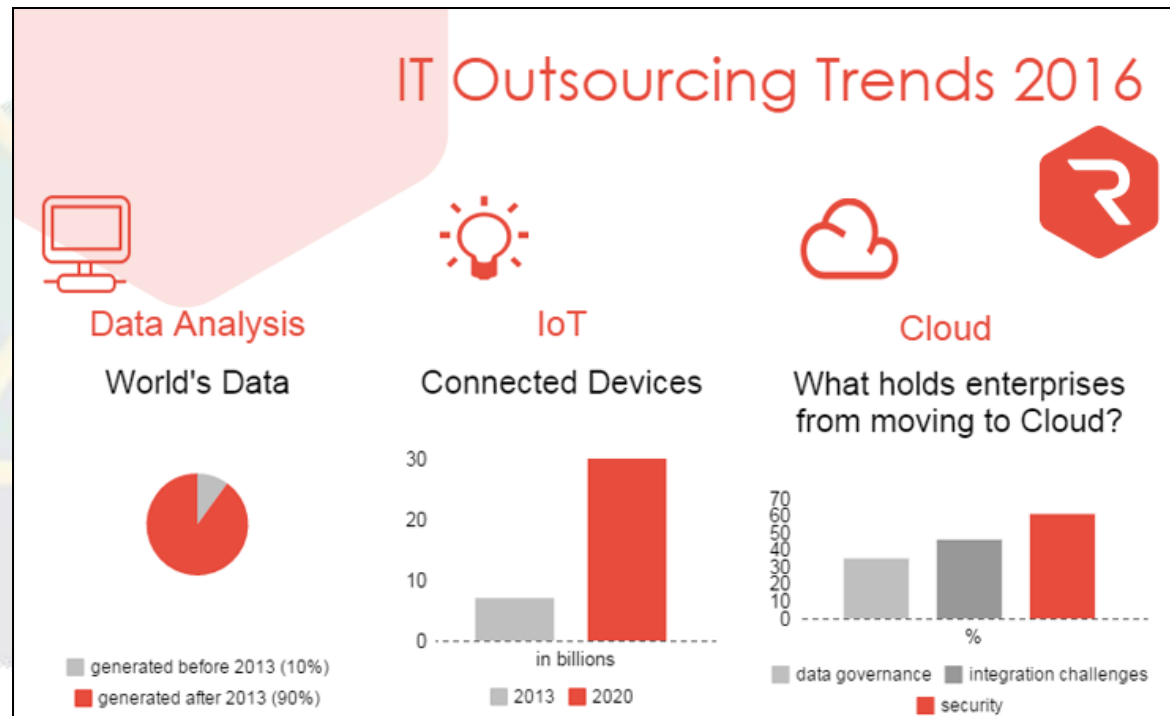8. confirm order
plan0 : if regular user do:1-2-3-4-7-8
     if new user do:1-2-3--5-6-7-8
plan2 : search movie user must be choose 2.1 or 2.2
plan5 : user must be choose kind of seats 4.1 or 4.3

Outsourcing

- IT outsourcing is the use of external service providers to effectively deliver IT-enabled business process, application service and infrastructure solutions for business outcomes.

IT Outsourcing Trends 2016

Data Analysis — World's Data
- generated before 2013 (10%)
- generated after 2013 (90%)

IoT — Connected Devices (in billions)
- 2013
- 2020

Cloud — What holds enterprises from moving to Cloud? (%)
- data governance
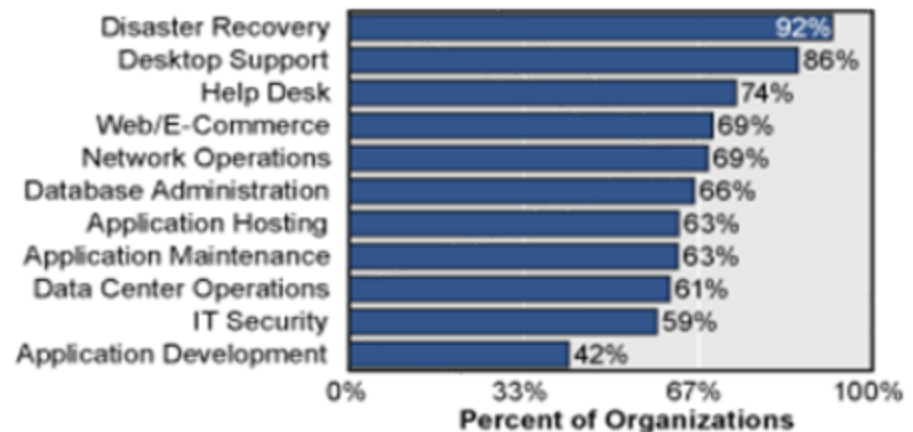- integration challenges
- security

Outsourcing
reasons and objectives

- Company lack resources (Hardware, software, staff, etc.) to handle some tasks.

- Company don't have the expertise to handle the task.

- Company's wants to concentrate on main business, so outsourced less important tasks.

- Company wants to transfer risk – vendors absorb the risks and provide warranty.

- Cost Saving – off-shore outsourcing is often cheaper then running the task locally.

Outsourcing
problems

- Outsourcing to experts could be expensive.

- Security risk – outsourcing critical systems.

- Loss of control - Owner don't own the system entirely, risk depending on vendor.
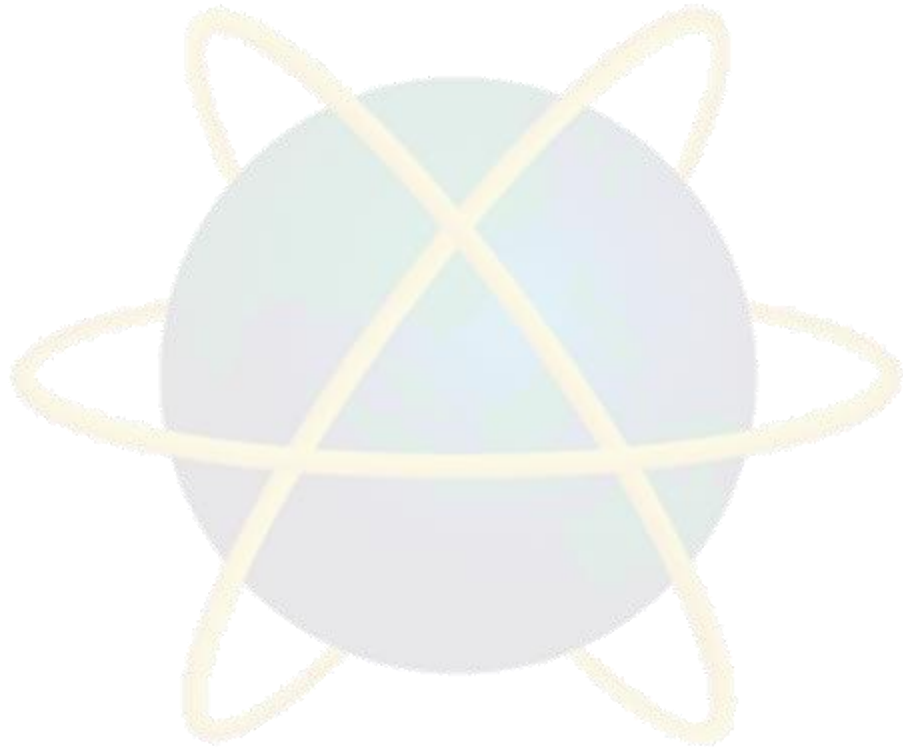
Outsourcing Cost-Success Rate for Each Function

Function	Percent
Disaster Recovery	92%
Desktop Support	86%
Help Desk	74%
Web/E-Commerce	69%
Network Operations	69%
Database Administration	66%
Application Hosting	63%
Application Maintenance	63%
Data Center Operations	61%
IT Security	59%
Application Development	42%

Percent of Organizations

Question & Answer

Next Session

- System Development Planning – Part 2

Tutorial

- What are the contents of a Feasibility Study Report?

- What are the information that you can get from a Gantt Chart?

- Name THREE services which are outsourced by company's today and why.

- ~~You are involved in creating a website for APU. Create a Work Breakdown Structure (WBS) for the project. Include at least 3 main task and 3 sub-tasks for each.~~