د/احمد سيد — Analysis and Design (SA1) — Lec1

1 * فيه extra read انت مطالب بيها من تاني كتاب مش هتلاقيها في المحاضرات بس انت مطالب بيها

Mid 20 — Project 20
Final 60

* Software develope Life cycle عبارة عن 5 phases
هنركز على اتنين منهم
SDL) هي ال Cycle لأى Software انت عايز تعمله
(Develop

← Planning phase : لازم تحدد ال Scope بتاع ال App
وده اول حاجة في اي برنامج 1
اهم حاجتين في ال planing : Scope + (Fesibility study)

- اي تغيير ولو طفيف من ال Customer ممكن يغير ال Scope كلها وده خطر

← تاني حاجة في ال planning 2 Study investigation
(دراسة جدوى) نعرف منها ال visibility

← لو technical visibility : لأى مدى ال IT
او Software team يقدر ينفذ او لأ

← Time visibility : هيتنفذ في وقت معين ولا ايه

← Economic visibility : هل ال benefit > اللي هدفعه
ولازم تكون أعلى

← Operation visibility : هل ال users اللي معانا
هيعرفوا يشتغلوا على البرنامج وعندهم ال Skills
الكافية ولا محتاجين تدريب

← مرحلة ال Analysis : بتجاوب فيها على (تاني مرحلة بعد planning)

- * What does system do ?
- * What is required ? (Requirement gathering)
- * Define and visualize requirements
- * What is models and Modeling (Soft.1 diagrams)
- *

Analysis (5 Lectures)

→ Ch 1 Overview of SA 1
→ Ch 2 Identify requirements
→ Ch 3 UseCases Identifying
→ Ch 4 Domain Model (شكل وصيغة ال data)
→ Ch 5 Usecase Modeling description

Design (5 lectures)

→ Ch6 System Design (How well system be implent)
→ Ch7 System Architecture * (بين ال Component و ال tasks)
→ Ch 8 Design User Interface
→ Ch 9 Define Database
→ Ch 10 Approach to System development

← ال Interface بتاعة ال app مش بس GUI ممكن
يكون Command Based زي ال Console App
و بعد كدة ظهر ال Voice Based بيشتغل بالصوت
زي ال Robotics وممكن يكون Gesture Based
من حركاتي بيشتغل

← ال Database مش بس Relational DB

[1] كان زمان فيه hirarechial Data Model

[2] بعد كدة بقيت Network Data Model

[3] اخر واحد طلع كان Relational DB بس الدنيا موقفتش على كدة

[4] كملت بقت OOP Data Model

[5] Object Relational Data Model
(OOP + Relational)

Database ← Jason ، XML ←

[6] No SQL Data Model جواها اربع اشكال كلها بتشتغل بشكل مختلف و متغير ودى كانت اخر حاجة ولسة شغالين عليها

← اخر مرحلة فى ال Implement و بنختار اللغة فى ال Software الاكتر استخدام

→ Java
→ PHP
→ .Net (C# , VP)

اتقالت فى محاضرتين ورا بعض

← اخر واهم مرحلة ال Testing لازم يكون Bug free
ودى أهم حاجة بعد ما تخلص البرنامج
وده هيتشرح فى مادة فى الكلية اسمها Quality Assurance
(بتخلى بالك من Extremes)

← Deploy نعمل install للبرنامج على جهاز العميل
بيعتمد على شكل الـ App ابليكيشن او برنامج

- * Quality Control Engineer ✱✱✱
  for Testing
- * System Architect Engineer ✱✱✱
- * System Analyst عندهم Soft Skills عالية
  تخليهم يعرفوا الـ ~~Hana~~ Require

← احسن Ch 10 ده فهم و تعبير عن Analysis & Design
الـ فى Waterfall model & Agile
و الـ Frameworks الى تحتها

→ Planning Phase :- scope + fesibility study

→ Analysis :- Gather Requirement

→ Design : How system will be implement to fulfil requirements.

Bug free : bug : سناريو معملتش حساب ان الـ user يعمله (Usecase) عشان كدة
No app is 100% bug free

Analysis and information SA1 Lecture 1 Ch1

✗ احنا في مرحلة ال analysis وال design

Software Development

(1 of 3)

- **Computer application** (app) – a computer software program that executes on a computing device to carry out a specific set of functions
  - Modest scope اصغر
- **Information system** – a set of interrelated components that collects, processes, stores, and provides as output the information needed to complete business tasks
  - Broader in scope than "app" اوسع
  - Includes database and related manual processes

الفرق بين الاتنين في ال Scope

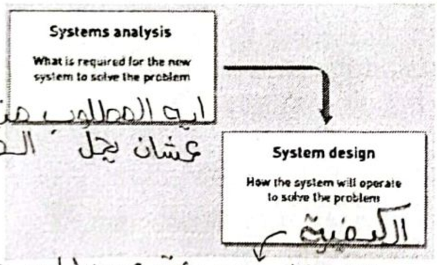
→ Software, hardware, data managment, data Communica. (networking), peopl

✗ مجموعة elements بتعمل 3 حاجات عشان تعمل Tasks

input → processing → output

✗ فيه فرق جوة ال processing بين data analysis، data managmet

(2 of 3)


Systems analysis
What is required for the new system to solve the problem
System design
How the system will operate to solve the problem

ايه المطلوب من ال system عشان يحل المشكلة

الكيفية

بطلع منها بمجموعة solutions و documents

Systems analysis – those activities that enable a person to understand and specify what an information system should accomplish

بتجاوب على سؤال: What system should do?

Systems design – those activities that enable a person to define and describe in detail the system that solves the need

How well system be implem

(3 of 3)

1. Understand the need (business need)
2. Capture the vision
3. Define a solution
4. Communicate the vision and solution مع ال stakeholders الى بيستفيدوا من ال System
5. Build the solution
6. Confirm that the solution meets the need (Testing)
7. Launch the solution system

System Development Life Cycle (S D L C)

(1 of 3)

زى حاجة سارقين

- The process consisting of all activities required to build, launch, and maintain an information system. Six core processes are:
    1. Identify the problem or need and obtain approval
    2. Plan and monitor the project (Project managment)
    3. Discover and understand the details of the problem or need (Analysis)
    4. Design the system components that solve the problem (Design)
    5. Build, test, and integrate system components (Testing + Implementation) ← تجمعهم سوا عشان فيه نوع اسمه unit test
    6. Complete system tests and then deploy the solution (Launch)

(2 of 3)

- **Project** – a planned undertaking that has a beginning and end and that produces some definite result
  mission → مهمة
  مهمة بتعمله plan عشان
  اطلعله معين output
    - Used to develop an information system
    - Requires knowledge of systems analysis and systems design tools and techniques

* 3 Most Important Constraints in any project [Time, Budget, Scope]

(3 of 3)

- **System development process or methodology:** a set of comprehensive guidelines for carrying out all of the activities of each core process of the SDLC
  * بننفذ ال 6 خطوات الى فوق ازاى ؟
  Sequential: Water fall/ زى
  phases كل phase لما تخلص
  للاخر انتقل الى بعدها
  الاغلب شغال Agile
    - Unified process (U P)
    - Extreme programming (X P)
    - Scrum
- Most processes/methodologies now use Agile and Iterative development

Iterative Development

- **Agile development** – an information system development process that emphasizes flexibility to anticipate new requirements during development
  → How to develope software in Iterative and incremental way
    - Fast on feet; responsive to change
      → Flexibility, welcome any change
- **Iterative development** -- an approach to system development in which the system is "grown" piece by piece through multiple iterations

CS CamScanner