

Nadra Guizani

- nadra.guizani@uta.edu
- Office Hours: W – 11am – 1pm, 2pm – 4 pm.
Or by appointment.
- Material is posted and updated on **Canvas**
- Announcements on **Teams**

INTRODUCTION

- What is software?
 - Computer programs +
 - Configuration data and files +
 - User and system documentation.
- What is software engineering?
 - An engineering discipline which is concerned with all aspect of software production.*.

SE vs. CS

- Difference between software engineering and computer science:
 - Computer science is concerned with theory and fundamentals
 - Software engineering is concerned with practical aspects of developing and delivering software
- Software engineering challenges:
 - Coping with legacy systems*
 - Coping with increasing diversity (heterogeneous systems-many types of hardware/software)
 - Coping with faster, cheaper

DEVELOPERS LOOK FOR DOCUMENTATION



IN LEGACY SYSTEM

memegenerator.net

Software Process

- What is a software process?
 - A set of activities and associated results which produce a software product
- Four fundamental process activities:
 1. Software specification
 2. Software development
 3. Software validation (i.e. It does what it intended to do based on software spec.)
 4. Software evolution (i.e. Change/enhancement/maintenance)

Software Process Models

- What is a software process model?*
- A representation of software process from a specific perspective.
- Examples of software process models:
 - Workflow model: Sequence of activities in the process along with their inputs, outputs and dependencies.
 - Data-flow or activity model: A set of activities that carry out some data transformation (input→output).
 - Role/action model: Represents roles of people involved in the software process and activities for which they are responsible.

Software Development Models

- Different models (paradigms) of software development:
 1. The Waterfall approach: Complete one phase (e.g. req., design, code, test) before going to next.
 2. Evolutionary development: Build quick, modify, and redo component until completion (Prototyping often used).*
 3. Formal transformation: Transform Specifications, using mathematical methods, to a program; guarantee correctness.
 4. System assembly from reusable components: Assemble already existing parts.
 5. Incremental method: Design and deliver parts as they become available (i.e. many small deliverables).

Attributes of Good Software

- Maintainability (more than 40% of software cost is due to maintenance)
- Dependability (Reliability, security, safety)
- Efficiency (memory, CPU time)
- Usability (Good UI and Documentation)

Ethical Responsibility

- Confidentiality (respect confidentiality of employer/client)
- Competence (avoid misrepresenting the level of competence)*
- Intellectual property rights (local laws, patents, copyrights)
- Computer misuse (Viruses, hacking, information theft)

Project Based Class

- 5 person group (Max)
- Group Form will be out @ Noon
- Group Form Deadline on Thursday @ 11.59 pm