

Notes Software Engineering

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1 Introduction

Definitions:

Definition 1.1 – Multi Person Multi Version

People coordinating in long period of time.

Definition 1.2 – Software

Is a collection of code and not only digital assets like: rules, documentations, procedures and many more.

Definition 1.3 – Software Types

- **Stand alone:** products used alone, like email, office, calendar;
- **Embedded in software products:** car, smart house;
- **Embedded in business process:** an information system;
- **Embedded in production process:** embedded in factories and classic production pipelines;

1.1 Describe Software

To describe a software we define his properties, they are divided in **functionality**, which express an action to be performed, and **non-functional**, this property describe how a functional property should behave, defining his correctness, and define his reliability, the idea is that corectness it's impossible to obtain, so it tries to limit the number of defect, setting a line that allows the threshold for the number of defects, on the other hand the availability is the percentage, over a period of time, of the system without occurring in any defect. Other non-functoinal properties are security, safety and deniability. Efficiency is the response time and the amount of resources used.

Every software has process: development, operation, maintainence. During development there are 4 main phases:

- **requirements;**
- **design;**
- **coding;**
- **testing;**

Basic rules:

- keep it simple;
- separation of concerns;
- abstraction