1.Which question no longer concerns the modern software engineering

a. Why does computer hardware cost so much?

b. Why does software take a long time to finish?

c. Why does it cost so much to develop a piece of software?

d. Why can't software errors be removed from products prior to delivery?

Answer: a

1.哪一个问题与现代软件工程无关

a. 为什么计算机硬件这么贵?

b. 为什么软件需要很长时间才能完成?

c. 为什么开发一个软件要花这么多钱?

d. 为什么软件错误不能在交付前从产品中移除?

答:a

2 Today the increased power of the personal computer has brought about an abandonment of the practice of team development of software.

a. True

b. False

Answer: b

2.今天，个人计算机能力的提高导致了软件团队开发实践的放弃。

a. 真

b. 假

答:b

3.Software is a product and can be manufactured using the same technologies used for other engineering artifacts.

a. True

b. False

Answer: b

3.软件是一种产品，可以使用与其他工程工件相同的技术进行生产。

a. 真

b. 假

答:b

4.Software deteriorates rather than wears out because

a. Software suffers from exposure to hostile environments.

b. Defects are more likely to arise after software has been used often.

c. Multiple change requests introduce errors in component interactions.

d. Software spare parts become harder to order.

Answer: c

4.软件会恶化而不是磨损，因为

a. 软件暴露在恶劣的环境中。

b. 经常使用软件之后，更容易出现缺陷。

c. 多个变更请求在组件交互中引入错误。

d. 软件备件更难订购。

答案:c

5. Most software continues to be custom built because
a. Component reuse is common in the software world.
b. Reusable components are too expensive to use.
c. Software is easier to build without using someone else's components.
d. Off-the-shelf software components are unavailable in many application domains.
Answer: d

5. 大多数软件仍然是自定义构建的，因为
a. 组件重用在软件世界中很常见。
b. 可重用组件的使用成本太高。
c. 不使用别人的组件，软件更容易构建。
d. 现成的软件组件在许多应用领域是不可用的。
答:d

6. The nature of software applications can be characterized by their information
a. complexity
b. content
c. determinacy
d. both b and c
Answer: d

6. 软件应用程序的性质可以由它们的信息来描述
a. 复杂性
b. 内容
c. 确定性
d. b 和 c
答:d

7. Change cannot be easily accommodated in most software systems, unless the system was designed with change in mind.
a. True
b. False
Answer: a

7. 在大多数软件系统中，除非在设计系统时考虑了更改，否则很难适应更改。
a. 真
b. 假
答:a

8. The functionality of most computer systems does not need to be enhanced the lifetime of the system.
a. True
b. False
Answer: b

8. 大多数计算机系统的功能不需要在系统的生命周期中进行增强。
a. 真
b. 假
答:b

1.Which of the items listed below is not one of the software engineering layers?
a. Process
b. Manufacturing
c. Methods
d. Tools
Answer: b

1.下列哪一项不是软件工程层?
a. 过程。
b. 制造
c. 方法
d. 工具
答:b

2.Software engineering umbrella activities are only applied during the initial phases of software development projects.
a. True
b. False
Answer: b

2.软件工程的伞形活动只在软件开发项目的初始阶段应用。
a. 真
b. 假
答:b

3.Which of these are the 5 generic software engineering framework activities?
a. communication, planning, modeling, construction, deployment
b. communication, risk management, measurement, production, reviewing
c. analysis, designing, programming, debugging, maintenance
d. analysis, planning, designing, programming, testing
Answer: a

3.以下哪一个是 5 个通用的软件工程框架活动?
a.沟通、规划、建模、构建、部署
b. 沟通，风险管理，测量，生产，审核
c. 分析、设计、编程、调试、维护
d. 分析，计划，设计，编程，测试
答:a

4.Which of these terms are level names in the Capability Maturity Model?
a. Performed
b. Repeated
c. Reused
d. Optimized
e. Both a and d
Answer: e

4.这些术语中哪些是能力成熟度模型中的级别名称?
执行。
b. 重复
c. 重用
d. 优化
e. a 和 d
答:e

5. Which of the items listed below is not one of the process patterns.
a. Intent
b. Solution
c. Resulting Context
d. Output
Answer: d

5. 下面列出的哪些项不是流程模式之一。
a. 意图。
b. 解决方案
c. 产生的背景
d. 输出
答:d

6. Process technology tools allow software organizations to compress schedules by skipping unimportant activities.
a. True
b. False
Answer: b

6. 过程技术工具允许软件组织通过跳过不重要的活动来压缩时间表。
a. 真
b. 假
答:b

7. It is generally accepted that one cannot have weak software processes and create high quality end products.
a. True
b. False
Answer: a

7. 人们普遍认为,一个人不可能拥有弱的软件过程并创建高质量的最终产品。
a. 真
b. 假
答:a

8. The tasks (and degree of rigor) for each activity are always unchanged.
a. True
b. False
Answer: b

8. 每个活动的任务(和严格程度)总是不变的。
a. 真
b. 假
答:b

1.The linear sequential model of software development is

a. A reasonable approach when requirements are well defined.

b. A good approach when a working program is required quickly.

c. The best approach to use for projects with large development teams.

d. An old fashioned model that cannot be used in a modern context.

Answer：a

1.软件开发的线性顺序模型是

a. 当需求被很好的定义时，一个合理的方法。

b. 当一个工作程序需要快速完成时，一个好的方法。

c.对于大型开发团队的项目使用的最佳方法。

d. 不能用于现代语境的老式模型。

答:a

2.The linear sequential model of software development is also known as the

a. Classical life cycle model

b. Fountain model

c. Spiral model

d. Waterfall model

e. both a and d

Answer：e

2.软件开发的线性顺序模型也被称为

a. 经典的生命周期模型

b. 喷泉模型

c. 螺旋模型

d. 瀑布模型

e. a 和 d

答:e

3.The incremental model of software development is

a. A reasonable approach when requirements are well defined.

b. A good approach when a working core product is required quickly.

c. The best approach to use for projects with large development teams.

d. A revolutionary model that is not used for commercial products.

Answer：b

3.软件开发的增量模型是

a. 当需求被很好的定义时，一个合理的方法。

b. 当快速需要一个可工作的核心产品时，一个好的方法。

c. 对于大型开发团队的项目使用的最佳方法。

d. 不用于商业产品的革命性模型。

答:b

4. The rapid application development model is

a. Another name for component-based development.

b. A useful approach when a customer cannot define requirements clearly.

c. A high speed adaptation of the linear sequential model.

d. All of the above.

Answer：c

4. 快速应用程序开发模型是

a. 基于组件的开发的另一个名称。

b. 当客户不能清楚地定义需求时，一个有用的方法。

c. 线性顺序模型的高速自适应。

d. 以上全部。

答案:c

5. Evolutionary software process models
a. Are iterative in nature
b. Can easily accommodate product requirements changes
c. Do not generally produce throwaway systems
d. All of the above
Answer：d

5. 演化软件过程模型
a. 本质上是迭代的
b. 能够轻松适应产品需求的变化
c. 一般不生产一次性系统
d. 以上全部
答:d

6. The prototyping model of software development is
a. A reasonable approach when requirements are well defined.
b. A useful approach when a customer cannot define requirements clearly.
c. The best approach to use for projects with large development teams.
d. A risky model that rarely produces a meaningful product.
Answer：b

6. 软件开发的原型模型是
a. 当需求被很好的定义时，一个合理的方法。
b. 当客户不能清楚地定义需求时，一个有用的方法。
c. 对于大型开发团队的项目使用的最佳方法。
d. 一个有风险的模型，很少产生有意义的产品。
答:b

7. Which of these is not one of the phase names defined by the Unified Process model for software development?
a. Inception phase
b. Elaboration phase
c. Construction phase
d. Validation phase
Answer：d

7. 哪一个不是软件开发的统一过程模型定义的阶段名称?
a. 初始阶段。
b. 精化阶段
c. 构建阶段
d. 验证阶段
答:d

8. In the Unified Process model requirements are determined iteratively and may span more than one phase of the process.
a. True
b. False
Answer：a

8. 在统一流程模型中，需求是迭代确定的，并且可能跨越流程的多个阶段。
a. 真
b. 假
答:a.

1. Agility is nothing more than the ability of a project team to respond rapidly to change.
a. True
b. False
Answer: b

1. 敏捷只不过是一个项目团队快速响应变更的能力。
a. 真
b. 假
答:b

2.Which of the following is not necessary to apply agility to a software process?
a. Eliminate the use of project planning and testing
b. Only essential work products are produced
c. Process allows team to streamline tasks
d. Uses incremental product delivery strategy
Answer: a

2.下列哪一项不需要将敏捷性应用于软件过程?
a. 取消项目计划和测试的使用
b. 只生产必要的工作产品
c. 流程允许团队简化任务
d. 采用增量式产品交付策略
答:a

3.How do you create agile processes to manage unpredictability?
a. Requirements gathering must be conducted very carefully
b. Risk analysis must be conducted before planning takes place
c. Software increments must be delivered in short time periods
d. Software processes must adapt to changes incrementally
e. Both c and d
Answer: e

3.如何创建敏捷流程来管理不可预测性?
a. 需求收集必须非常小心地进行
b. 在制定计划之前必须进行风险分析
c. 软件增量必须在短时间内交付
d. 软件过程必须增量地适应变化
e. c 和 d
答:e

4.Which of the following traits need to exist among the members of an agile software team?
a. Competence
b. Decision-making ability
c. Mutual trust and respect
d. All of the above.
Answer: d

4.敏捷软件团队成员需要具备以下哪些特征?
a. 能力。
b. 决策能力
c. 相互信任和尊重
d. 以上全部。
答:d

5. All agile process models conform to a greater or lesser degree to the principles stated in the "Manifesto for Agile Software Development".
a. True
b. False
Answer: a

5. 所有敏捷过程模型都或多或少地遵循“敏捷软件开发宣言”中阐述的原则。
a. 真
b. 假
答:a

6. What are the four framework activities found in the Extreme Programming (XP) process model?
a. analysis, design, coding, testing
b. planning, analysis, design, coding
c. planning, analysis, coding, testing
d. planning, design, coding, testing
Answer: d

6. 在极限编程(XP)过程模型中发现的四个框架活动是什么?
a. 分析，设计，编码，测试
b. 规划、分析、设计、编码
c. 计划、分析、编码、测试
d. 规划、设计、编码、测试
答:d

7. What are the three framework activities for the Adaptive Software Development (ASD) process model?
a. analysis, design, coding
b. feasibility study, functional model iteration, implementation
c. requirements gathering, adaptive cycle planning, iterative development
d. speculation, collaboration, learning
Answer: d

7. 适应性软件开发(ASD)过程模型的三个框架活动是什么?
a. 分析、设计、编码
b. 可行性研究，功能模型迭代，实施
c. 需求收集，自适应周期规划，迭代开发
d. 推测，合作，学习
答:d

8. Which is not one of the key questions that is answered by each team member at each daily Scrum meeting?
a. What did you do since the last meeting?
b. What obstacles are you encountering?
c. What is the cause of the problems you are encountering?
d. What do you plan to accomplish at the next team meeting?
Answer: c

8. 哪一个不是每个团队成员在每日 Scrum 会议上回答的关键问题?
a. 上次会议之后你做了什么?
b. 你遇到了什么障碍?
c. 你遇到的问题的原因是什么?
d. 你计划在下一次团队会议上完成什么?
答案:c

1.Which of the following can be elements of computer-based systems?
a. documentation
b. software
c. hardware
d. people
e. all of above
Answer: e

1.下列哪项可以是基于计算机的系统的元素?
答:文档
b 软件
c .硬件
d .人
e.以上各项
答:e

2.To construct a system model the engineer should consider which of the following restraining factors?
a. assumptions
b. budget
c. constraints
d. schedule
e. both a and c
Answer: e

2.要建立一个系统模型，工程师应该考虑以下哪些制约因素?
a. 假设
b. 预算
c. 约束
d. 的时间表
e. a 和 c
答:e

3.During business process engineering, three different architectures are examined.
a. applications, data, technology infrastructure
b. communications, organization, financial infrastructure
c. network, database, reporting structure
d. systems, requirements, data structure
Answer: a

3.在业务流程工程期间，将检查三种不同的体系结构。
a.应用、数据、技术基础设施
b.通讯、组织、财务基础设施
c.网络、数据库、报表结构
d.系统、需求、数据结构
答:a

4.The goal of product engineering is to translate the customer's desire for a set of defined capabilities into a working product.
a. True
b. False
Answer: a

4.产品工程的目标是将客户对一组已定义功能的需求转化为可工作的产品。
a. 真
b. 假
答:a

5. UML notations that can be used to model the hardware and software elements of a system are
a. Activity diagrams
b. Class diagrams
c. Deployment diagrams
d. Use-case diagrams
e. a, b, and c
Answer: e

5. 可以用来对系统的硬件和软件元素建模的 UML 表示法是
a. 活动图。
b. 类图
c. 部署图
d. 用例图
e. a, b,和 c
答:e

6. The system model template contains which of the following elements
a. input
b. output
c. user interface
d. all of above
Answer: d

6. 系统模型模板包含以下哪个元素
a. 输入
b. 输出
c. 用户界面
d. 以上所有
答:d

7. The top level of the hierarchical model of a system is known as the
a. AFD
b. DFD
c. SCD
d. SFD
Answer: c

7. 系统的层次模型的顶层称为
a. AFD
b. DFD
c. SCD
d. SFD
答案:c

8. Select any large system or product with which you are familiar. Define the set of domains that describe the world view of the system or product. Describe the set of elements that make up one or two domains. For one element, identify the technical components that must be engineered.

BPE (Business Process Engineering)

world view: bank
domains: loans, savings, foreign exchange
elements of savings: Window service, Online service, ATM service
technical components of Online service: customer identify (security), communication, database

Product Engineering
world view: smart phone
domains: chipset, software
elements of software: OS, application platform
technical components of application platform: communication, security, utility (telephone book, calendar)

8. 选择您熟悉的任何大型系统或产品。定义描述系统或产品的世界观的一组域。描述组成一个或两个域的元素集。对于一个元素，确定必须设计的技术组件。

BPE(业务流程工程)

世界观:银行
领域:贷款，储蓄，外汇
储蓄要素:窗口服务、网上服务、ATM 服务

在线服务的技术组成部分:客户识别(安全)、通信、数据库

产品工程
世界观:智能手机
域:芯片、软件
软件要素:操作系统、应用平台
应用平台技术组成:
通讯、安全、实用(电话簿、日历)

1.In requirements validation the requirements model is reviewed to ensure its technical feasibility.
a. True
b. False
Answer: b

1.在需求验证中，对需求模型进行评审，以确保其技术可行性。
a. 真
b. 假
答:b

2.In win-win negotiation, the customer's needs are met even though the developer's need may not be.
a. True
b. False
Answer: b

2.在双赢的谈判中,客户的需求得到了满足,即使开发人员的需求可能得不到满足。
a. 真
b. 假
答:b

3.Which of the following is not one of the context-free questions that would be used during project inception?
a. What will be the economic benefit from a good solution?
b. Who is against this project?
c. Who will pay for the work?
d. Who will use the solution?
Answer: b

3.下面哪个不是在项目初始阶段使用的上下文无关的问题?
a. 一个好的解决方案会带来什么经济效益?
b. 谁反对这个项目?
c. 谁来为这项工作付钱?
d. 谁将使用该解决方案?
答:b

3.The use of traceability tables helps to
a. debug programs following the detection of run-time errors
b. determine the performance of algorithm implementations
c. identify, control, and track requirements changes
d. none of the above
Answer: c

3.使用跟踪表有助于
a. 调试程序后，检测运行时错误
b. 确定算法实现的性能
c. 识别、控制和跟踪需求变更
d. 以上都不是
答案:c

5. The system specification describes the
a. Function, performance and constraints of a computer-based system
b. implementation of each allocated system
c. element software architecture
d. time required for system simulation
Answer: a

5. 系统规范描述了
a.基于计算机的系统的功能、性能和限制
b.每个分配系统的实现
c. element 软件架构
d.系统仿真所需时间
答:a

6.Use-case actors are always people, never system devices.
a. True
b. False
Answer: b

6.用例参与者总是人，而不是系统设备。
a. 真
b. 假
答:b

7.Which of the following is not one of the requirement classifications used in Quality Function Deployment (QFD)?
a. exciting
b. expected
c. mandatory
d. normal
Answer: c

7.下列哪项不是质量功能展开(QFD)中使用的需求分类之一?
a. 令人兴奋的
b .预计
c .强制性
d .正常
答案:c

8. Develop a complete use-case for one of the following activities.

a. Making a withdrawal at an ATM

b. Using your charge card for a meal at a restaurant

c. Searching for books (on a specific topic) using an on-line bookstore

Solution a:

Use-case: withdrawal at an ATM

Primary actor: customer, bank card, ATM

Precondition: ATM is ready

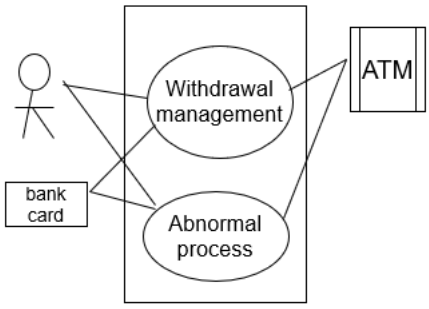
Trigger: customer decides to make a withdrawal

Scenario:

1. Customer insert bank card into ATM
2. Customer input password
3. Customer press the withdrawal
4. Customer input the number of money
5. Customer gets the money
6. Customer takes out the bank card

Exception:

1. The bank card is not recognized – see abnormal process
2. Password is incorrect or not recognized – see abnormal process
3. Money does not get out – see abnormal process
4. The bank card can not be took out – see abnormal process



8. 为下列活动之一开发一个完整的用例。

a. 在自动取款机上取款

b.在餐厅用签帐卡结账

c.使用网上书店搜索(特定主题的)书籍

解决方案 a:

用例:在自动取款机上取款

主要参与者:客户、银行卡、ATM 机

前置条件:ATM 准备好了

触发:客户决定进行取款

场景:

1. 顾客将银行卡插入自动柜员机
2. 客户输入密码
3. 客户按下提款
4. 客户输入金额
5. 顾客得到钱
6. 顾客取出银行卡

例外:

1. 银行卡无法识别-见异常处理
2. 密码不正确或无法识别-请参阅异常过程
3. 钱不出来——看程序异常
4. 无法取出银行卡-见异常处理

8. Develop a complete use-case for one of the following activities.

a. Making a withdrawal at an ATM

b. Using your charge card for a meal at a restaurant

c. Searching for books (on a specific topic) using an on-line bookstore

Solution b:

Use-case: using charge card at a restaurant

Primary actor: customer, cashier, charge card, card reader

Precondition: card reader is ready

Trigger: customer decides to pay by charge card

Scenario:

1.Cashier insert charge card into card reader

2. Customer input password

3. Cashier input the number of money

4. Card reader prints the receipt

5. Cashier takes out the charge card

6. Customer signs the receipt

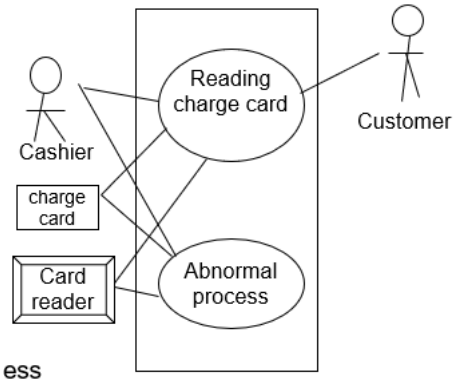
Exception:

1. The charge card is not recognized – see abnormal process

2. Password is incorrect or not recognized – see abnormal process

3. receipt does not get out – see abnormal process

4. The charge card can not be took out – see abnormal process



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8. 为下列活动之一开发一个完整的用例。

a. 在自动取款机上取款

b. 在餐厅用签帐卡结账

c. 使用网上书店搜索(特定主题的)书籍

解决方案 b:

用例:在餐馆使用签帐卡

主要演员:顾客，收银员，签帐卡，读卡器

先决条件:读卡器准备好了

触发:客户决定用签帐卡支付

场景:

1.收银员将签帐卡插入读卡器

2. 客户输入密码

3. 收银员输入钱数

4. 读卡器打印收据

5. 收银员拿出签帐卡

6. 顾客在收据上签字

例外:

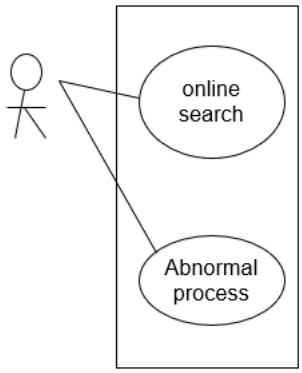
1. 签帐卡不被识别-见异常过程

2. 密码不正确或无法识别-请参阅异常过程

3.收据没有出来-看到异常过程

4. 签帐卡无法取出-见异常过程

8. Develop a complete use-case for one of the following activities.
a. Making a withdrawal at an ATM
b. Using your charge card for a meal at a restaurant
c. Searching for books (on a specific topic) using an on-line bookstore
Solution c:
Use-case: searching for books
Primary actor: customer
Precondition: customer registration starts
Trigger: customer decides to search for books
Scenario:
1. Customer input ID and password
2. Customer input specific topic
3. Book list is displayed
4. Customer checks the books
Exception:
1. Password is incorrect or not recognized – see abnormal process
2. Internet disconnect – see abnormal process



8. 为下列活动之一开发一个完整的用例。
a. 在自动取款机上取款
b. 在餐厅用签帐卡结账
c. 使用网上书店搜索(特定主题的)书籍

解决方案 c:
用例:搜索书籍
主要演员:客户
先决条件:开始客户注册
触发:客户决定搜索图书
场景:
1. 客户输入 ID 和密码
2. 客户输入特定主题
3. 显示图书列表
4. 顾客结账
例外:
1. 密码不正确或无法识别-请参阅异常过程
2. 互联网断开-看到异常过程

1.Which of these is not an element of an object-oriented analysis model?
a. Behavioral elements
b. Class-based elements
c. Data elements
d. Scenario-based elements
Answer: c

1.哪一个不是面向对象分析模型的元素?
a. 行为的元素。
b. 基于类元素
c. 数据元素
d. 基于场景的元素
答案:c

2.Which of the following is not an objective for building an analysis model?
a. define set of software requirements that can be validated
b. describe customer requirements
c. develop an abbreviated solution for the problem
d. establish basis for software design
Answer: c

2.下列哪项不是建立分析模型的目标?
a. 定义一组可以验证的软件需求
b. 描述客户需求
c. 为这个问题制定一个简短的解决方案
d. 建立软件设计基础
答案:c

3.The data flow diagram
a. depicts relationships between data objects
b. depicts functions that transform the data flow
c. indicates how data are transformed by the system
d. indicates system reactions to external events
e. both b and c
Answer: e

3.数据流程图
a. 描述数据对象之间的关系
b. 描述转换数据流的函数
c. 表示系统如何转换数据
d. 表示系统对外部事件的反应
e. b 和 c
答:e

4.Which of the following items does not appear on a CRC card?
a. class collaborators
b. class name
c. class reliability
d. class responsibilities
Answer: c

4.下列哪项没有出现在 CRC 卡上?
a. 类的合作者
b. 类名
c. 类可靠性
d. 类责任
答:c

5.For purposes of behavior modeling a state is any
a. consumer or producer of data.
b. data object hierarchy.
c. observable mode of behavior.
d. well defined process.
Answer: c

5.对于行为建模的目的，状态是任意的
a. 数据的消费者或生产者。
b. 数据对象层次结构。
c. 可观察的行为模式。
d. 定义良好的过程。
答案:c

6.Attributes cannot be defined for a class until design has been completed.
a. True
b. False
Answer: b

6.在完成设计之前，不能为类定义属性。
a. 真
b. 假
答:b

7.Operations are object procedures that are invoked when an object receives a message.
a. True
b. False
Answer: a

7.操作是在对象接收到消息时调用的对象过程。
a. 真
b. 假
答:a

8.UML activity diagrams are useful in representing which analysis model elements?
a. Behavioral elements
b. Class-based elements
c. Flow-based elements
d. Scenario-based elements
Answer: d

8.UML 活动图在表示哪些分析模型元素时是有用的?
a. 行为的元素。
b. 基于类元素
c. 基于流的元素
d. 基于场景的元素
答:d

9. Which of the following should be considered as candidate objects in a problem space?
a. events
b. people
c. structure
d. all of the above
Answer: d

9. 下列哪项应该被视为问题空间中的候选对象?
a. 事件
b. 人们
c 结构
d. 以上都是
答:d

10.In a few sentences, try to describe the primary differences between structured analysis and object-oriented analysis.

Answer: Structured analysis begins with a consideration of the data objects that the system must manipulate. In structured analysis the data objects are described with a data dictionary and the entity relation diagram (ERD) depicts relationships between data objects. The flow and transformation of data through a system are represented using the data flow diagram (DFD). The structured analysis also incorporates a behavioral modeling notation called the state transition diagram (STD). In the object oriented analysis model, class-based elements model the objects that the system will manipulate, the operations that will be applied to the objects to effect the manipulation, relationships (some hierarchical) between the objects, and the collaborations that occur between the classes that are defined. In addition the OO model represents the behavior of objects and the behavior of the system as a whole.

10.用几句话来描述结构化分析和面向对象分析之间的主要区别。

答:结构化分析首先考虑系统必须操作的数据对象。在结构化分析中，用数据字典描述数据对象，用实体关系图描述数据对象之间的关系。通过数据流图(DFD)来表示系统中的数据流和数据转换。结构化分析还合并了一个称为状态转换图(STD)的行为建模符号。在面向对象分析模型中，基于类的元素对系统将操作的对象、将应用于对象以影响操作的操作、对象之间的关系(一些层次结构)以及定义的类之间的协作进行建模。此外，OO模型表示对象的行为和整个系统的行为。

1.Which of the following are areas of concern in the design model?
a. architecture
b. data
c. interface
d. project scope
e. a, b and c
Answer: e

1.以下哪些是设计模型中需要关注的领域?
a. 体系结构
b. 数据
c. 接口
d. 项目范围
e. a, b 和 c
答:e

2.Which of these are characteristics of a good design?
a. exhibits strong coupling between its modules
b. implements all requirements in the analysis model
c. includes test cases for all components
d. provides a complete picture of the software
e. both b and d
Answer: e

2.一个好的设计有哪些特点?
a. 模块间耦合性强
b. 实现分析模型中的所有需求
c. 包括所有组件的测试用例
d. 提供软件的完整图片
e. b 和 d
答:e

3.Information hiding makes program maintenance easier by hiding data and procedure from unaffected parts of the program.
a. True
b. False
Answer: a

3.信息隐藏通过将数据和过程隐藏在程序未受影响的部分，使得程序维护更加容易。
a. 真
b. 假
答:a

4.Cohesion is a qualitative indication of the degree to which a module
a. can be written more compactly.
b. focuses on just one thing.
c. is able to complete its function in a timely manner.
d. is connected to other modules and the outside world.
Answer: b

4.内聚性是模块的一个定性指标
a. 可以写得更简洁。
b. 只关注一件事。
c. 能够及时完成其功能。
d. 连接到其他模块和外部世界。
答:b

5. Coupling is a qualitative indication of the degree to which a module
a. can be written more compactly.
b. focuses on just one thing.
c. is able to complete its function in a timely manner.
d. is connected to other modules and the outside world.
Answer: d

5. 耦合是模块的一个定性指示
a. 可以写得更简洁。
b. 只关注一件事。
c. 能够及时完成其功能。
d. 连接到其他模块和外部世界。
答:d

6. Polymorphism reduces the effort required to extend an object system by
a. coupling objects together more tightly.
b. enabling a number of different operations to share the same name
c. making objects more dependent on one another.
d. removing the barriers imposed by encapsulation.
Answer: b

6. 通过以下方法, 多态性减少了扩展对象系统所需的工作
a. 将对象更紧密地耦合在一起。
b. 允许多个不同的操作共享相同的名称
c. 使对象更依赖于彼此。
d. 消除封装带来的障碍。
答:b

7. Which design model elements are used to depict a model of information represented from the user's view?
a. Architectural design elements
b. Component-level design elements
c. Data design elements
d. Interface design elements
Answer: c

7. 哪些设计模型元素用于描述用户视图中表示的信息模型?
a. 建筑设计元素
b. 组件级设计元素
c. 数据设计元素
d. 界面设计元素
答案:c

8. Which design is analogous to the floor plan of a house?
a. Architectural design elements
b. Component-level design elements
c. Data design elements
d. Interface design elements
Answer: a

8. 哪一种设计与房子的平面图相似?
a. 建筑设计元素
b. 组件级设计元素
c. 数据设计元素
d. 界面设计元素
答:a

9.Which design model is analogous to the detailed drawings of the access points and external utilities for a house?
a. Architectural design elements
b. Component-level design elements
c. Data design elements
d. Interface design elements
Answer: d

9.哪一种设计模型与住宅的接入点和外部设施的详细图纸类似?
a. 建筑设计元素
b. 组件级设计元素
c. 数据设计元素
d. 界面设计元素
答:d

10. Which design model is analogous to a set of detailed drawings for each room in a house?
a. Architectural design elements
b. Component-level design elements
c. Data design elements
d. Interface design elements
Answer: b

10.哪一种设计模型与房子里每个房间的一套详细图纸相类似?
a. 建筑设计元素
b. 组件级设计元素
c. 数据设计元素
d. 界面设计元素
答:b

11. The deployment design elements specify the build order for the software components.
a. True
b. False
Answer: b

11.部署设计元素指定软件组件的构建顺序。
a. 真
b. 假
答:b

12. One of the key problems in software reuse is the inability to find existing reusable design patterns when hundreds of candidates exist.
a. True
b. False
Answer: a

12.软件重用中的一个关键问题是,当存在数百个候选对象时,无法找到现有的可重用设计模式。
a. 真
b. 假
答:a

1. An architectural style encompasses which of the following elements?
a. constraints
b. set of components
c. semantic models
d. syntactic models
e. a, b and c
Answer: e

1. 架构风格包含以下哪一个元素?
a. 约束
b. 组件集
c. 语义模型
d. 语法模型
e. a, b 和 c
答:e

2.During the process of modeling the system in context, systems that interact with the target system are not represented as
a. Peer-level systems
b. Subordinate systems
c. Super-ordinate systems
d. Working systems
Answer: d

2.在上下文中对系统建模的过程中，与目标系统交互的系统没有表示为
a. 对等级别的系统
b. 下属系统
c. 协调系统
d. 工作系统
答:d

3.When the overall flow in a segment of a data flow diagram is largely sequential and follows straight-line paths, _____ is present.
a. low coupling
b. Good modularity
c. transaction flow
d. transform flow
Answer: d

3.当数据流图中某一段的总体流基本上是连续的，并且遵循直线路径时，就会出现“……”。
a. 低耦合
b. 良好的模块化
c. 事务流
d. 变换流
答:d

4.When you encounter both transform flow and transaction flow in the same DFD the flow is partitioned and the appropriate mapping technique is used on each part of the DFD.
a. True
b. False
Answer: a

4.当您在同一 DFD 中同时遇到转换流和事务流时，将对该流进行分区，并在 DFD 的每个部分使用适当的映射技术。
a. 真
b. 假
答:a

5.When a single item that triggers other data flow along one of many paths of a data flow diagram, _____ characterizes the information flow.
a. high coupling
b. poor modularity
c. transaction flow
d. transform flow
Answer: c

5.当一个项目沿着数据流图的许多路径之一触发其他数据流时，____表示信息流的特征。
a. 高度耦合
b. 可怜的模块化
c. 事务流
d. 变换流
答案:c

6.In transaction mapping the first level factoring results in the
a. creation of CFD.
b. derivation of control hierarchy
c. distribution of work modules
d. refinement of the module view
Answer: b

6.在事务映射中，第一级保理结果为
a. CFD 的创造。
b. 控制层次的派生
c. 工作模块分配
d. 模块视图的细化
答:b

7. A successful application of transform or transaction mapping to create an architectural design is supplemented by
a. entity relationship diagram
b. module interface descriptions
c. processing narratives for each module
d. test case for each module
e. Both b and c
Answer: e

7. 对转换或事务映射的成功应用来创建体系结构设计进行了补充
a. 实体关系图
b. 模块接口说明
c. 处理每个模块的叙述
d. 每个模块的测试用例
e. b 和 c
答:e

8.The best representation of system architecture is an operational software prototype.
a. True
b. False
Answer: b

8.系统架构的最佳表示形式是可操作的软件原型。
a. 真
b. 假
答:b

1.In the context of object-oriented software engineering a component contains
a. attributes and operations
b. instances of each class
c. roles for each actor (device or user)
d. a set of collaborating classes
Answer: d

1.在面向对象软件工程的上下文中，组件包含
a. 属性和操作
b. 每个类的实例
c. 每个参与者(设备或用户)的角色
d. 一组协作类
答:d

2. In traditional software engineering, modules must serve in which of the following roles?
a. Control component
b. Infrastructure component
c. Problem domain component
d. All of the above
Answer: d

2.在传统的软件工程中，模块必须扮演以下哪个角色?
a. 控制组件。
b. 基础设施组件
c. 问题域组件
d. 以上全部
答:d

3.Which of the following is not one of the four principles used to guide component-level design?
a. Dependency Inversion Principle
b. Parsimonious Complexity Principle
c. Interface Segregation Principle
d. Open-Closed Principle
Answer: b

3.下列哪项不是用于指导组件级设计的四个原则之一?
a. 依赖倒置原则
b. 简约复杂性原则
c. 界面隔离原理
d. 开放闭合原则
答:b

4.Classes and components that exhibit functional, layer, or communicational cohesion are relatively easy to implement, test, and maintain.
a. True
b. False
Answer: a

4.显示功能、层或通信内聚的类和组件相对容易实现、测试和维护。
a. 真
b. 假
答:a

5.In component design, elaboration does not require which of the following elements to be described in detail?
a. Source code
b. Attributes
c. Interfaces
d. Operations
e. b, c and d
Answer: a

5.在组件设计中，精化不需要详细描述以下哪些元素?
a. 源代码。
b. 属性
c. 接口
d. 操作
e. b, c 和 d
答:a.

6.In component-level design "persistent data sources" refer to
a. Component libraries
b. Databases
c. Files
d. All of the above
e. Both b and c
Answer: e

6.在组件级设计中，“持久数据源”指的是
a. 组件库。
b. 数据库
c. 文件
d. 以上全部
e. b 和 c
答:e

7.The object constraint language (OCL) complements UML by allowing a software engineer to use a formal grammar to construct unambiguous statements about design model elements.
a. True
b. False
Answer: a

7.对象约束语言(OCL)通过允许软件工程师使用正式的语法来构造关于设计模型元素的明确的语句来补充 UML。
a. 真
b. 假
答:a

8.Which of these criteria are useful in assessing the effectiveness of a particular design notation?
a. maintainability
b. modularity
c. simplicity
d. size
e. a, b, and c
Answer: e

8.在评估特定设计符号的有效性时，下列哪个标准是有用的?
a. 可维护性
b. 模块化
c. 简单
d. 大小
e. a, b, 和 c
答:e

1.Which of the following interface design principles does not allow the user to remain in control of the interaction with a computer?
a. allow interaction to interruptible
b. allow interaction to be undoable
c. hide technical internals from casual users
d. only provide one defined method for accomplishing a task
Answer: d

1.下列哪一种界面设计原则不允许用户控制与计算机的交互?
a. 允许交互可中断
b. 允许可撤消的交互
c. 向普通用户隐藏技术内部信息
d. 只提供一种已定义的方法来完成一项任务
答:d

2.Which of the following interface design principles reduces the user's memory load?
a. define intuitive shortcuts
b. disclose information in a progressive fashion
c. establish meaningful defaults
d. provide an on-line tutorial
e. answers a, b and c
Answer: e

2.下列哪项界面设计原则可减少使用者的记忆体负荷?
a. 定义直观的快捷方式
b. 以渐进的方式披露信息
c. 建立有意义的违约
d. 提供在线教程
e. a, b 和 c
答:e

3.Interface consistency implies that
a. each application should have its own distinctive look and feel
b. input mechanisms remain the same throughout the application
c. navigational methods are context sensitive
d. visual information is organized according to a design standard
e. both b and d
Answer: e

3.接口一致性意味着
a. 每个应用程序都应该有自己独特的外观和感觉
b. 输入机制在整个应用程序中保持不变
c. 导航方法是上下文敏感的
d. 视觉信息是根据设计标准组织的
e. b 和 d
答:e

4.The reason for reducing the user's memory load is make his or her interaction with the computer quicker to complete.
a. True
b. False
Answer: b

4.减少用户的内存负载的原因是使他或她与计算机的交互更快地完成。
a. 真
b. 假
答:b

5.Which model depicts the profile of the end users of a computer system?
a. design model
b. implementation model
c. user model
d. user's model
Answer: c

5.哪个模型描述计算机系统的最终用户的配置文件?
a. 设计模型
b. 实现模型
c. 用户模型
d. 用户的模型
答案:c

6. Which of these framework activities is not normally associated with the user interface design processes?
a. cost estimation
b. interface construction
c. interface validation
d. user and task analysis
Answer: a

6.以下哪些框架活动通常与用户界面设计过程无关?
a. 成本估算
b. 接口建设
c. 接口验证
d. 用户和任务分析
答:a

7. Which approach(es) to user task analysis can be useful in user interface design?
a. have users indicate their preferences on questionnaires
b. rely on the judgement of experienced programmers
c. study existing computer-based solutions
d. observe users performing tasks manually
e. both c and d
Answer: e

7.在用户界面设计中，哪种用户任务分析方法是有用的?
a. 让用户在问卷上表明他们的偏好
b. 依靠有经验的程序员的判断
c. 研究现有的基于计算机的解决方案
d. 观察用户手动执行任务
e. c 和 d
答:e

8. Several usability measures can be collected while observing users interacting with a computer system including
a. down time for the application
b. number of user errors
c. software reliability
d. time spent looking at help materials
e. both b and d
Answer: e

8.在观察用户与计算机系统交互时，可以收集几个可用性度量，包括
a. 应用程序停机时间
b. 用户错误数量
c. 软件可靠性
d. 花时间看帮助材料
e. b 和 d
答:e

1.Which of the following interface design principles allow the user to remain in control of the interaction with a computer?
a. allow interaction to interruptible
b. allow interaction to be undoable
c. hide technical internals from casual users
d. only provide one defined method for accomplishing a task
e. a, b and c
Answer: e

1.下列哪项界面设计原则可让使用者控制与电脑的互动?
a. 允许交互可中断
b. 允许可撤消的交互
c. 向普通用户隐藏技术内部信息
d. 只提供一种已定义的方法来完成一项任务
e. a, b 和 c
答:e

2.Which of the following interface design principles does not reduce the user's memory load?
a. define intuitive shortcuts
b. disclose information in a progressive fashion
c. establish meaningful defaults
d. provide an off-line tutorial
e. answer a, b 和 c
Answer :d

2.下列哪个界面设计原则不会减少用户的内存负荷?
a. 定义直观的快捷方式
b. 以渐进的方式披露信息
c. 建立有意义的违约
d. 提供离线教程
e. a, b 和 c
答:d

3.Interface consistency implies that
a. each application should have its own distinctive look and feel
b. input mechanisms remain the same throughout the application
c. navigational methods are context sensitive
d. visual information is organized according to a design standard
e. both b and d
Answer: e

3.接口一致性意味着
a. 每个应用程序都应该有自己独特的外观和感觉
b. 输入机制在整个应用程序中保持不变
c. 导航方法是上下文敏感的
d. 视觉信息是根据设计标准组织的
e. b 和 d
答:e

4.If past interactive models have created certain user expectations it is not generally good to make changes to the model.
a. True
b. False
Answer: a

4.如果过去的交互模型已经产生了某些用户期望，那么对模型进行更改通常是不的。
a. 真
b. 假
答:a

5.Which model depicts the image of a system that an end user creates in his or her head?
a. design model
b. user model
c. system model
d. system perception
Answer: d

5.哪个模型描述了最终用户在他或她的头脑中创建的系统映像?
a. 设计模型
b. 用户模型
c. 系统模型
d. 系统感知

6.Which of these framework activities is normally associated with the user interface design processes?
a. cost estimation
b. interface construction
c. interface validation
d. user and task analysis
e. b, c and d
Answer: e

6.以下哪些框架活动通常与用户界面设计过程相关?
a. 成本估算
b. 接口建设
c. 接口验证
d. 用户和任务分析
答:e

7.Which approach(es) to user task analysis can be useful in user interface design?
a. have users indicate their preferences on questionnaires
b. rely on the judgement of experienced programmers
c. study existing project management
d. observe users performing tasks manually
Answer: d

7.在用户界面设计中，哪种用户任务分析方法是有用的?
a. 让用户在问卷上表明他们的偏好
b. 依靠有经验的程序员的判断
c. 研究现有的项目管理
d. 观察用户手动执行任务
答:d

8. Several common design issues surface for almost every user interface including
a. adaptive user profiles
b. error handling resolution of graphics
c. response time
d. displays system
e. both b and d
Answer: e

8.几乎每个用户界面都会出现一些常见的设计问题，包括
a. 自适应用户配置文件
b. 图形的错误处理解决方案
c. 响应时间
d. 显示系统
e. b 和 d
答:e

1.What is the normal order of activities in which traditional software testing is organized?
a. integration testing, unit testing, system testing, validation testing
b. validation testing, unit testing, integration testing, system testing
c. unit testing, integration testing, validation testing, system testing
d. system testing, validation testing,integration testing, unit testing
Answer: c

1.组织传统软件测试的正常活动顺序是什么?
a. 集成测试、单元测试、系统测试、验证测试
b. 验证测试、单元测试、集成测试、系统测试
c. 单元测试、集成测试、验证测试、系统测试
d. 系统测试，验证测试，集成测试，单元测试
答:c

2.Which of the following strategic issues needs to be addressed in a successful software testing process?
a. conduct formal technical reviews prior to testing
b. specify requirements in a quantifiable manner
c. use independent test teams
d. wait till code is written prior to writing the test plan
e. answers a and b
Answer: e

2.在成功的软件测试过程中，需要解决下列哪些战略问题?
a. 在测试前进行正式的技术评审
b. 以可量化的方式指定需求
c. 使用独立的测试团队
d. 在编写测试计划之前，等待代码编写完成
e. a 和 b
答:e

3.Which of the following need to be assessed during unit testing?
a. algorithmic performance
b. code stability
c. error handling
d. execution paths
e. both c and d
Answer: e

3.以下哪项需要在单元测试期间进行评估?
a. 算法性能
b. 代码稳定性
c. 错误处理
d. 执行路径
e. c 和 d
答:e

4.Drivers and stubs are not needed for unit testing because the modules are tested independently of one another.
a. True
b. False
Answer: b

4.单元测试不需要驱动程序和存根，因为模块是相互独立测试的。
a. 真
b. 假
答:b

5.Top-down integration testing has as it‘s major advantage(s) that
a. low level modules never need testing
b. major decision points are tested early
c. no drivers need to be written
d. no stubs need to be written
e. both b and c
Answer: e

5.自顶向下集成测试的主要优点是
a. 低级别模块不需要测试
b. 对主要决策点进行早期测试
c. 不需要写入驱动程序
d. 不需要写存根
e. b 和 c
答:e

6. Bottom-up integration testing has as it's major advantage(s) that
a. major decision points are tested early
b. no drivers need to be written
c. no stubs need to be written
d. regression testing is not required
Answer: c

6.自底向上集成测试的主要优点是
a. 主要的决策点在早期进行测试
b. 没有司机需要写
c. 不需要写存根
d. 不需要回归测试
答案:c

7. The OO testing integration strategy involves testing
a. groups of classes that collaborate or communicate in some way
b. single operations as they are added to the evolving class implementation
c. operator programs derived from use-case scenarios
d. none of the above
Answer: a

7. OO 测试集成策略包括测试
a. 以某种方式合作或交流的班级
b. 当单个操作被添加到演进的类实现中时
c. 来自用例场景的操作程序
d. 以上都不是
答:a

8. Which of the following is an approach to debugging?
a. backtracking
b. cause elimination
c. brute force
d. code restructuring
e. a, b and c
Answer: e

8. 下面哪个是调试方法?
a. 回溯
b. 原因消除
c. 蛮力
d. 代码重组
e. a, b 和 c
答:e

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答:e

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Answer: e

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a. 算法性能
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c. 错误处理
d. 执行路径
e. c 和 d
答:e

4.When testing object-oriented software it is important to test each class operation separately as part of the unit testing process.
a. True
b. False
Answer: b

4.在测试面向对象软件时，作为单元测试过程的一部分分别测试每个类操作是很重要的。
a. 真
b. 假
答:b

5.Which of the following tests is a system test that forces the software to fail in a variety of ways and verifies that software is able to continue execution without interruption?
a. security testing
b. performance testing
c. stress testing
d. recovery testing
Answer: d

5.下列哪个测试是系统测试，它迫使软件以各种方式失败，并验证软件能够继续执行而不中断?
a. 安全测试
b. 性能测试
c. 压力测试
d. 恢复测试
答:d

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a. major decision points are tested early
b. no drivers need to be written
c. no stubs need to be written
d. regression testing is not required
Answer: c

6.自底向上集成测试的主要优点是
a. 主要的决策点在早期进行测试
b. 没有司机需要写
c. 不需要写存根
d. 不需要回归测试
答案:c

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a. 以某种方式合作或交流的班级
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a. 回溯
b. 原因消除
c. 蛮力
d. 代码重组
e. a, b 和 c
答:e

1.Which of the following are characteristics of testable software?
a. observability
b. simplicity
c. stability
d. all of the above
Answer: d

1.下列哪项是可测试软件的特征?
a. 可观测性
b. 简单
c. 稳定
d. 以上都是
答:d

2.The testing technique that requires devising test cases to demonstrate that each program function is operational is called?
a. black-box testing
b. glass-box testing
c. grey-box testing
d. white-box testing
Answer: a

2.需要设计测试用例来证明每个程序功能是可操作的测试技术被调用了吗?
a. 黑盒测试
b. 玻璃箱测试
c. 灰色矩形测试
d. 白盒测试
答:a

3.The testing technique that requires devising test cases to exercise the internal logic of a software module is called?
a. behavioral testing
b. black-box testing
c. grey-box testing
d. white-box testing
Answer: d

3.需要设计测试用例来运行软件模块的内部逻辑的测试技术称为?
a. 行为测试
b. 黑盒测试
c. 灰色矩形测试
d. 白盒测试
答:d

4.The cyclomatic complexity metric provides the designer with information regarding the number of
a. cycles in the program
b. errors in the program
c. independent logic paths in the program
d. statements in the program
Answer: c

4.圈复杂度度量为设计人员提供关于的数量的信息
a. 程序中的循环
b. 程序错误
c. 程序中独立的逻辑路径
d.程序中的语句
答案:c

5.Black-box testing attempts to find errors in which of the following categories
a. incorrect or missing functions
b. interface errors
c. performance errors
d. all of the above
e. none of the above
Answer: d

5.黑盒测试试图找出下列类别中的错误
a.不正确或缺少功能
b .界面错误
c .性能错误
d.以上都是
e.以上皆非
答:d

6. Testing OO class operations is made more difficult by
a. encapsulation
b. inheritance
c. polymorphism
d. both b and c
Answer: d

6. 测试 OO 类操作变得更加困难
a. 封装
b .继承
c 多态性
d. b 和 c
答:d

7. What is the differences between black-box testing and white-box testing?
Answer: Black-box testing involves testing the functionality of a software component without knowing the details of its internal logic.White-box testing involves testing the independent logic paths with full implementation knowledge.

7. 黑盒测试和白盒测试有什么区别?
答:黑盒测试涉及在不了解软件组件内部逻辑细节的情况下测试其功能。白盒测试包括使用完整的实现知识测试独立的逻辑路径。

8. What is equivalence partitioning as it applies to software testing? What is scenario-based testing?
Answer: Equivalence partitioning technique divides the input domain into classes of equivalent data items. Test cases are derived from combinations of elements from each equivalence class. Exhaustive testing of all input domain values is not necessary.
Scenario-based testing: The user tasks described in the use-cases are used to construct the test cases. It is used to uncover errors that occur when actors interact with the software (focus is on user behavior, not product behavior).

8. 当它应用于软件测试时，什么是等价划分?什么是基于场景的测试?
答:等价划分技术将输入域划分为等价数据项的类。测试用例来自每个等价类的元素组合。不需要对所有输入域值进行详尽的测试。基于场景的测试:用例中描述的用户任务用于构建测试用例。它用于发现参与者与软件交互时发生的错误(重点是用户行为，而不是产品行为)。

- Introduction To Software Engineering
  - What is software engineering?
  - The differences between software and hardware
    - Software is developed, not manufactured.
    - Software does not wear out, but it can deteriorate.
    - Most software is custom build, not assembled out of components.
- Software Process
  - Generic View
    - Software Engineering Layers: Process, Methods, Tools
    - Generic Software Engineering Framework Activities: Communication, Planning, Modeling, Construction, Deployment
    - CMMI : Incomplete, Performed, Managed, Defined, Quantitatively managed, Optimized
  - Process Models
    - Waterfall Model (Linear Sequential Model)
    - Incremental Model
    - Prototyping Model
    - Spiral Model
  - Extreme Programming (XP)
    - Framework Activities: planning, design, coding, test

软件工程概论
什么是软件工程?
软件和硬件之间的区别
软件是开发出来的，不是制造出来的。
软件不会磨损，但会恶化。
大多数软件是自定义构建的，而不是由组件组装而成的。
软件过程
通用视图
软件工程层:过程、方法、工具
通用软件工程框架活动:
沟通，计划，建模，构建，部署
CMMI:不完整的，执行的，管理的，定义的，定量管理的，
优化
流程模型
瀑布模型(线性顺序模型)
增量式模型
原型模型
螺旋模型
极限编程(XP)
框架活动:规划、设计、编码、测试

Software Engineering Practice
Requirements Engineering
The definition of requirements engineering
Inception, Elicitation, Elaboration, Negotiation, Specification, Validation
Structural Analysis
Data dictionary
ERD
Object-oriented Analysis
Diagrams of UML for analysis modeling
Use-case diagram: visualizes the interaction of your system with the outside world
Activity diagram: shows the flow of events within your system
Class diagram: describes the structure of system by showing system's classes, their attributes, and the relationship between the classes
State diagram: represents active states for each class and the events that cause changes between these active states

软件工程实践
需求工程
需求工程的定义
先启、引出、精化、协商、规范、验证
结构分析
数据字典
ERD
面向对象分析
用于分析建模的 UML 图
用例图:可视化系统与外部世界的交互
活动图:显示系统内的事件流
类图:通过显示系统的类、它们的属性以及类之间的关系来描述系统的结构
状态图:表示每个类的活动状态以及导致这些活动状态之间变化的事件

- Software Engineering Practice
  - Design Engineering
    - Four Design Models

Data Design, Architectural Design, Interface Design, Component-level Design

    - Structural Design
      - Cohesion
      - Coupling
    - Object-oriented Design
      - Information Hiding
      - Polymorphism
- Software Engineering Practice
  - Test Strategies
    - Unit Test
    - Integration Test
      - Top-down Integration
      - Bottom-up Integration
    - Validation Test
    - System Test
  - Test Tactics
    - White-box Test
      - Basic Path Testing
    - Black-box Test
      - Equivalence Partitioning
    - OO Test
      - Scenario-based Testing

软件工程实践
工程设计
四个设计模型
数据设计、体系结构设计、接口设计、组件级设计
结构设计
凝聚力
耦合
面向对象设计
信息隐藏
软件工程实践
测试策略
单元测试
集成测试
自顶向下集成
自底向上集成
验证测试
系统测试
测试策略
白盒测试
基本路径测试
黑盒测试
等价划分
面向对象的测试
基于场景的测试