软件工程作业管理系统
需求规格说明书

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摘　要

本文是软件工程需求规格说明书模板，修改自于中国科学技术大学本硕博毕业论文 LaTeX 模板示例文件，该模板由 zepinglee 和 seisman 创建，遵循中国科学技术大学的论文写作规范，适用于撰写学士、硕士和博士学位论文。

本文档最后一章演示如何使用 LaTeX 的一些基本命令以及本模板提供的一些特殊功能，模板的选项及详细用法请参考模板说明文档 ustcthesis.pdf。请在提交之前把最后一掌实例注释掉。

关键词：软件工程　中国科学技术大学　学位论文　LaTeX 通用模板　学士　硕士　博士　示例文档　模板说明文档

表 1　缩略词清单

缩略语	英文全名	中文解释
c	d	e

目 录

图目录

表目录

第 1 章　简介

1.1　目的

This section should state the purpose of the document. It could also specify the intended audience. Identify the product whose software requirements are specified in this document.

这部分要描述文档的目的。应该指明读者。说明本需求文档描述了哪个产品的软件需求。

1.2　范围

This section should address areas which this document includes and that are specifically excludes.

本节应描述文档所包括和不包括的内容。

第 2 章　总体概述

Describes the general elements that may affect the product and the requirements on the product. It includes the following four parts. Note that this section should not describe the specific requirements, instead, it makes the specific requirements to be described more understandable.

本节描述影响产品和产品需求的一般因素。由以下 4 个部分构成。有一点需说明的是本节不描述具体的需求，只是使那些将要描述的具体需求更易于理解。

2.1　软件概述

2.1.1　项目介绍

Describe the context and origin of the project being specified in this SRS. For example, state whether this project is a follow-on member of a project family, a replacement for certain existing systems, or a new, self-contained project.

描述本软件需求所描述的项目的背景。例如：本项目是一系列版本中的一个，或者是替代某个已经存在的系统，还是一个新的独立的项目。

2.1.2　产品环境介绍

Describes the whole environment that is composed of this software and other products / projects.

- If this software is independent or fully self-contained, state it here.
  - describe the function of each component of that larger system/project, and identify the interfaces.
  - determine the main external interfaces of this software.（Note: Do not describe the interfaces in detail; the detailed description will be provided in other part of the SRS document.）
  - describe related hardware of the product and peripheral equipment.（Note: This is only a general description, not in detail.）

It is very helpful to describe the main components, interconnection and external interfaces of the larger system/project by Block Diagram. This part should not provide a detailed design solution, or detailed design constraint for the solution (the detailed design constraint will be described in the section of specific requirement). This section is the basis of the design constraints.

描述的是本产品与其它产品或项目所组成的整体环境。

1. 如果本产品是独立的并完全自我包含，在此说明这一点。

2. 如果 SRS 定义的产品是更大的系统或项目的组件（此种情形经常发生），那么应：

A. 描述此大系统或项目每个组件的功能，并且标识接口。

B. 确定本软件产品主要外部接口。（注意：在此部分并不进行这些接口的详细描述；对这些接口的详细描述在 SRS 的其它部分提供。）

C. 描述相关产品硬件和所使用的外部设备。（注意：这只是概述性描述。）

通过方块图来描述大系统或项目的主要组件，互连性以及外部接口将是非常有帮助的。本部分不应提出一个具体的设计解决方案或对解决方案的具体设计约束（具体设计约束将在具体需求章节中描述）。本部分内容是产生设计约束的基础。

2.2 软件功能

Summarizes the major functions that must be implemented through the software, and the functions to be implemented through user operation. Details will be provided in the Specific Requirement, so only a summary (such as a directory list) is needed here. The functions should be organized to make them understandable to the readers, and be appropriate for subsequent design and tests. Diagrams like top-level data flow diagram or object class diagram are recommended to illustrate the relationships among the major requirement groups

Sometimes, this section can directly refer to the superior specification of the software that allocate the specific requirements to this software (if existed). The specific requirements should not be described in this section. But this section is the basis of the specific requirements.

概述软件的必须实现的和通过用户操作实现的主要功能。这里只需要进行

简要描述（例如目录列表），详细描述在详细需求部分描述。对需求功能进行组织，以便于读者理解，并能指导后续的设计和测试。可以用图表来表示主要需求群组之间的关系，例如：高层的数据流图，面向对象的分析等。

有时此部分所要求的功能概述可以从分配具体功能给此软件产品的更高层规格（如果存在的话）直接引用。

本节不应描述具体需求。但本节内容是具体需求章节的基础。

2.3 用户特征

List down the basic required characteristics of the user or operator of the system. E.g. the experience, Skill level, required role etc., This part should not describe the specific requirements, instead, it provides the basis for the specific requirements.

列出对用户或系统操作者的要求，如：经验，能力，角色等。

本节不应描述具体需求。但本节内容是具体需求章节的基础。

2.4 假设和依赖关系

List any assumed factors (as opposed to known facts) that could affect the requirements stated in the SRS. These could include third party or commercial components that you plan to use, issues around the development or operating environment, or constraints. The project could be affected if these assumptions are incorrect, are not shared, or change. Also identify any dependencies the project has on external factors, such as software components that you intend to reuse from another project, unless they are already documented elsewhere (for example, in the vision and scope document or the project plan).

列出可能影响 SRS 中需求的所有的假设因素（与已知事实相对而言），包括准备使用的第三方或商业组件，操作和开发环境的问题约束等。如果上述假设不正确、没有被告知或者改变了都将对项目产生影响。列出项目对外部条件的依赖，例如重用其他项目的模块等。如果在其他文档（例如项目计划或范围文档等）里已经描述了，在这里可以不用描述。

第 3 章　具体需求

<The following sections must be repeated for each requirement. >

在每一条需求描述中重复下列部分

3.1　功能需求

This section describes how the input of the software is translated to the output. It describes the essential action the software must perform.

For each kind of function, or each independent function in some cases, the requirements of input, process and output must be described, which are usually organized with the following four subsections:

本子章节应描述软件产品的输入怎样被转换成输出。它描述了软件必须执行的基本动作。

对每一类功能或有时对每一个单独的功能，必须描述输入、处理、输出方面的需求。这些通常以下面四个子段落来组织:

3.1.1　功能需求 1

Please don’t use ”Functional Requirement(1)” as the title of the functional requirement. Name the functional requirements with a few simple words and a requirement ID. For example:

R.INTF.CALC.001 Calculating expression

R.INTF.CALC.002 Print

Naming the requirement ID shall follow the Software Requirements Management Procedure (REP01)

用需求编号加上简短词汇做为功能需求名，不要用“功能需求（1）”作为功能名，例如：R.INTF.CALC.001 计算表达式

R.INTF.CALC.002 打印

需求编号规则按照软件需求管理规程 (REP01) 进行

3.1.1.1 介绍

<Itemize the detailed functional requirements associated with this feature. These are the software capabilities that must be present in order for the user to carry out the services provided by the feature. Include how the project should respond to anticipated error conditions or invalid inputs. Requirements should be concise, complete, unambiguous, verifiable, and necessary. Use ”TBD” as a placeholder to indicate when necessary information is not yet available. >

逐条列出与本特性相关的功能需求。包括项目如何响应预期的错误输入，非法条件和无效输入。需求应该简明，完整，不含糊，可验证，必要的。当需要的信息不确定的时候使用“待定”。

3.1.1.2 输入

This section consists of: A. Detailed description of all input data of the function, including: Source of input Quantify Measurement units Timing requirements Valid input range that contains the precision and tolerance B. Reference of interface specification or interface control document that are provided in proper place.

本子段落应包含下列内容：

A. 对该功能所有输入数据的详细描述，包括：

输入来源数量度量单位时间要求包含精度和容忍度的有效输入范围

B. 在适当的地方提供的对接口规格或接口控制文档的参考。

3.1.1.3 处理

Describes all the operations on the input data, and the process to get the output data, including the following specifications: A. Verification of input data B. Exact order of the operations, including the time sequene of each event. C. Response to exception, such as: Overflow Communication failure Error process D. Any method used to transfer the input data to the output data. (such as equation,mathematic algorithm and logical operation) For example. The formula to calculate the income tax in a pay roll. the weather model used for weather forecast E. Verification of output data. 本子段落应描述对输入数据所执行的所有操作和如何获得输出的过程。这包括下列规格：

A. 输入数据的有效性检测。

B. 操作的确切次序，包括各事件的时序。

C. 对异常情况的回应，例如：溢出通信失败错误处理 D. 用于把系统输入转换到相应输出的任何方法（诸如方程式，数学算法，逻辑操作）。例如，这可能描述下列方面：对工资单里代扣所得税的计算公式。用于气象预报的气象模型。

E. 对输出数据的有效性检测。

3.1.1.4 输出

This section should include: A. The detailed description of output data of the function, including: Target to output to (Such as a printer or a file) Quantity Measurement units Time sequence Valid output range including the precision and tolerance Process of the invalid value. Error message. B. Reference of interface specification or interface control document that are provided in proper place. For the systems with their requirements focused on the input/output actions, all the important input/output actions and the time sequences of the input/output pairs should be described in the SRS. In a system that inputs and actions are memorized as the basis for the reactions to be taken, the timing sequence for the input/output pairs must be available here. This kind of functional action is similar to a status machine. 本子段落应包含：

A. 对该功能所有输出数据的详细描述，这个描述包括：输出的到何处（如打印机，文件）数量度量单位时序包含精确度和容忍度的有效输出范围对非法值的处理错误消息

B. 在适当的地方提供对接口规格或接口控制文档的参考。

此外，对那些需求集中在输入/输出行为的系统，SRS 应描述所有重要的输入/输出行为及输入输出对的次序。对一个需要记忆其行为以根据输入和过去的行为进行反应的系统，输入输出对的次序是要求的；这种功能行为就类似于有限状态机。

3.2 性能需求

<If there are performance requirements, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specifies the timing relationships for real time systems. Such requirements should be made as specific as possible. >

如果有性能方面的需求，在这里列出并解释他们的原理。以帮助开发者理解意图以做出正确的设计选择。在实时系统中的时序关系。保证需求尽可能的详细而精确。

3.2.1 性能需求 1

Describes the statically and dynamically quantized requirements on the software (or the interaction between user and the software) Static quantized requirement could include: A. Maximum number of terminal supported. B. Maximum number of users that can use the software at the same time. C. Maximum number of files and records to be processed D. Maximum size of tables and files Dynamically quantized requirements could include: A. Specific duration of normal value and peak value of workload (e.g., one hour) B. Number of event and task and data volume to be processed All these requirements should be described by measurable term, for example, saying ”95Note: The quantized constraint of a detailed requirement should be described in the subsection of the detailed requirement. 本子章节应从整体上描述静态和动态的量化的对软件（或人与软件交互）的需求。

静态的量化需求可能包括:

A. 支持的终端数目。

B. 支持的同时使用的用户数目。

C. 处理的文件和记录的数目。

D. 表和文件的大小。

动态的量化需求可能包括:

A. 在正常和峰值工作量条件下特定时间段（如一小时）

B. 处理的事务和任务的数目以及数据量。

所有的这些需求应以可测量的术语进行描述，例如所有的操作应在 1 秒内被处理完成，而不是描述成操作员不必等待操作的完成。

注意：用于一个具体功能的量化限制通常在该功能的处理子章节中描述。

3.3 外部接口需求

3.3.1 用户接口

<The interface of the system with the User and vice versa should be explained in detail. >

详细描述系统与用户之间的接口

This section should include: A. Features that must be supported by the software for eachman-machine interface. For example, if the user operates from a display terminal, then the following should be included: Screen format required Page layout and content of report and menu Timing sequence for input and output Usage of some functional key combinations B. Every aspect about the use of the system's user interface. It could be a list that shows the user what should do and what should not do. For example, an option of overlong or overshort message. . And same as other requirements, these requirements should be easily verified. For example, saying "A level 4 typist can finish function X in Z minutes after a one-hour training." instead of "A typist can finish function X"

这应描述下述内容:

A. 对每种人机界面，软件所必须支持的特性。例如，如果系统用户通过一个显示终端进行操作，那么应包含下述内容: 要求的屏幕格式页面规划及报告或菜单的内容输入和输出的相关时序一些组合功能键的用法

B. 与系统用户接口使用相关的所有方面。这可能只是一个简单的关于系统怎样展示给用户而该做什么和不该做什么的列表。例如提供关于长或短错误消息选项。和所有其它需求一样，这些需求也应能被检验，例如，四级打字员经一小时的培训后能在 Z 分钟内完成功能 X，而不是一个打字员能完成功能 X。

3.3.2 软件接口

<The interface with other system/modules/projects should be explained in detail. >

详细描述与其他系统 /模块 /项目之间的接口

Describes how to use the other (required) software products. (such as data management system, operation system, or algorithm tools package), and the interfaces to other application systems (such as interfaces between the protocol process system and the database management system) For each required software product, following in-

formation should be provided: A. Name B. Mnemonic symbol C. Version number D. Source For each interface, this section should: A. Discuss the objective of the required software. B. Define the interfaces by content and format of message/function. If the interfaces have been clearly described in other documents, it is not necessary to describe in detail here. But the reference of those documents should be given.

在此应描述如何使用其它（必需的）软件产品（例如，数据管理系统，操作系统，或算法工具包），以及与其它应用系统的接口（例如，协议处理系统和数据库管理系统之间的接口）。

对每个必需的软件产品，应提供下列信息：A. 名字 B. 助记符 C. 版本号 D. 来源

对每个接口，本部分应：

A . 讨论与本软件产品相关的接口软件的目的。

B. 按消息/函数内容和格式定义接口。如果接口已在其它文档中很清楚地描述，就没有必要在这儿进行详细描述，但需说明应参考的文档。

3.3.3 硬件接口

<The interface with other hardware components should be explained in detail. >

详细描述与硬件的接口

Describes the logical features of the interface between the software and hardware components, including the equipment supported and how the equipment and protocol is supported.

Defines the interfaces according to the content and format of the software/hardware protocol. If the interfaces have been clearly described in other documents, it is not necessary to describe in detail here. But the reference of those documents should be given.

在此描述软件产品和系统硬件组件之间接口的逻辑特征，也包括支持哪些设备、怎样支持这些设备和协议等。

按软/硬件协议内容和格式定义接口。如果接口已在其它文档中很清楚地描述，就没有必要在这儿进行详细描述，但需说明应参考的文档。

3.3.4 通讯接口

<This should specify the various interfaces to communications such as local network protocols, etc.>

详细描述通讯接口，如本地网络协议等。

Defines the interfaces according to the content and format of the message/function. If the interfaces have been clearly described in other documents, it is not necessary to describe in detail here. But the reference of those documents should be given.

按消息/函数内容和格式定义接口。如果接口已在其它文档中很清楚地描述，就没有必要在这儿进行详细描述，但需说明应参考的文档。

第 4 章　总体设计约束

<Describe any items or issues that will limit the options available to the developers. >

描述可能限制开发人员选择的事项。

4.1　标准符合性

< This subsection should specify the requirements derived from existing standards or regulations. In case, if the project refers any International standards, then the deviations from the standards could be specified along with the International standards reference. >

本节详细说明需求所采用的标准或规范的来源。如果项目采用了国际标准，应该说明国际标准及项目与标准的偏离情况。

4.2　硬件约束

<This subsection could include Requirements for the software to operate inside various hardware constraints, such as timing constraints, memory constraints etc.)

本节包括软件在不同的硬件平台运行的需求，如时间相关的约束，内存方面的约束等。

4.3　技术限制

<This subsection could include limitations on the use of specific technologies, interfaces, databases, parallel operations; communications protocols; design conventions or programming standards. >

本节包括对使用特定技术的限制，包括接口，数据库，并行操作，通讯协议，设计约定，编程规范等。

第 5 章　软件质量特性

<Specify any additional quality characteristics for the project that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.

详细说明项目任何其他的质量特性。该特性对客户和开发者都非常重要。考虑的方面包括：适应性，可用性，正确性，灵活性，交互工作能力，可维护性，可移植性，可靠性，可重用性，鲁棒性，可测试性和可用性等。定量的详细描述这些特性，尽可能的可验证。对不同属性之间的重要性加以阐述，如：易用性比易学性更重要。

<Please use the below sub-section for each attributes separately. You can copy the section for additional attributes. >

每一个属性单独使用一个小节描述，可根据需要进行增减，如增加可维护性小节等。

第 6 章　其他需求

<Any other requirement specified by the customer need to be listed below with appropriate section. This may include Database, Coding requirements, Error handling, Testing requirements etc., Few sample requirements are listed below. Please note, you may remove or add if something is not applicable. >

使用适当的章节，详细说明任何其他客户需求，包括数据库，编码需求，错误处理，测试需求等。下面仅列出了少量样例，你可以删除和增加项目。

6.1　数据库

< This could specify the requirements for any database that is to be developed as part of the project. >

详细说明项目相关的数据库方面的需求。

6.2　操作

<This could specify the normal and special operations required by the user. >

详细说明用户通常的和特殊的操作需求。

6.3　本地化

<Any requirement on multi language operation could be described here. >

描述支持多语种的需求。

第 7 章　依赖关系

<Explain the internal and external dependency for each requirement (if applicable).
>

解释每一条需求的内部和外部依赖关系。

第 8 章　需求分级

表 8.1　需求分级表

需求 ID	需求名称	需求分级
a	b	c
a	b	c
a	b	c
a	b	c
a	b	c
a	b	c
a	b	c
a	b	c

Importance of requirements are classified as following:

1. Mandatory: absolutely essential features, without which the product development will be canceled.
2. Important: unessential features that may affect the viability of the product.
3. Nice to have: desired features, the absence of which will not affect the product viability.

重要性分类如下：

- 必须的绝对基本的特性；如果不包含，产品就会被取消。
- 重要的不是基本的特性，但这些特性会影响产品的生存能力。
- 最好有的期望的特性；但省略一个或多个这样的特性不会影响产品的生存能力

第 9 章　待确定问题

表 9.1　待确定问题表

需求 ID	问题描述	影响 (H/M/L)	风险	责任人	解决日期	状态 (Open/Close)
a	b	c	d	e	f	g
a	b	c	d	e	f	g
a	b	c	d	e	f	g
a	b	c	d	e	f	g
a	b	c	d	e	f	g
a	b	c	d	e	f	g

第 10 章　Latex 使用例子

10.1　图

10.1.1　示例

图 10.1　测试图片

10.1.2　带图注的图

10.2　表格

10.2.1　A Simple Table

10.2.2　长表格

图 10.2　带图注的图片

注：the solid lines represent the time histogram of the spontaneous activities of an old monkey cell(gray) and a young monkey cell (black). The bin-width is 1

表 10.2　长表格演示

名称	说明	备注
AAAAAAAAAAA	BBBBBBBBBB	CCCCCCCCCCCCC
AAAAAAAAAAA	BBBBBBBBBB	CCCCCCCCCCCCC
AAAAAAAAAAA	BBBBBBBBBB	CCCCCCCCCCCCC

续下页

表 10.1　这里是表的标题

a	b
c	d

注：这里是表的注释

表 10.2　长表格演示（续）

名称	说明	备注
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC

续下页

表 10.2　长表格演示（续）

名称	说明	备注
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC
AAAAAAAAAAAA	BBBBBBBBBBB	CCCCCCCCCCCCCC

10.3　算法环境

模板中使用 `algorithm2e` 宏包实现算法环境。关于该宏包的具体用法，请阅读宏包的官方文档。

Data: this text
Result: how to write algorithm with LaTeX2e
initialization;
while *not at end of this document* **do**
    read current;
    if *understand* **then**
        go to next section;
        current section becomes this one;
    else
        go back to the beginning of current section;
    end
end

算法 10.1: 算法示例 1

10.4　代码环境

模板中使用 `listings` 宏包实现代码环境。详细用法见宏包的官方说明文档。

以下是代码示例，可以在文中任意位置引用**??** 。

```
   input : A bitmap Im of size w × l
   output: A partition of the bitmap
 1 special treatment of the first line;
 2 for i ← 2 to l do
 3     special treatment of the first element of line i;
 4     for j ← 2 to w do
 5         left ← FindCompress(Im[i, j − 1]);
 6         up ← FindCompress(Im[i − 1, ]);
 7         this ← FindCompress(Im[i, j]);
 8         if left compatible with this then // O(left, this)==1
 9             if left < this then Union(left,this);
10             else Union(this,left);
11         end
12         if up compatible with this then          // O(up, this)==1
13             if up < this then Union(up,this);
               // this is put under up to keep tree as flat
                  as possible
14             else Union(this,up);
               // this linked to up
15         end
16     end
17     foreach element e of the line i do FindCompress(p);
18 end
```

算法 10.2: 算法示例 2

代码 10.1　示例代码

```
1 #include <stdio.h>
2
3 int main( )
4 {
5    printf("hello, world\n");
6    return 0;
7 }
```

10.5　引用文献标注

10.5.1　著者-出版年制标注法

```
\citestyle{ustcauthoryear}
```

\cite{knuth86a} ⇒ Knuth (1986)

\citet{knuth86a} ⇒ Knuth (1986)

\citet[chap.~2]{knuth86a} ⇒ Knuth (1986, chap. 2)

\citep{knuth86a} ⇒ (Knuth, 1986)

\citep[chap.~2]{knuth86a} ⇒ (Knuth, 1986, chap. 2)

\citep[see][]{knuth86a} ⇒ (see Knuth, 1986)

\citep[see][chap.~2]{knuth86a} ⇒ (see Knuth, 1986, chap. 2)

\citet*{knuth86a} ⇒ Knuth (1986)

\citep*{knuth86a} ⇒ (Knuth, 1986)

\citet{knuth86a,tlc2} ⇒ Knuth (1986); Mittelbach et al. (2004)

\citep{knuth86a,tlc2} ⇒ (Knuth, 1986; Mittelbach et al., 2004)

\cite{knuth86a,knuth84} ⇒ Knuth (1984, 1986)

\citet{knuth86a,knuth84} ⇒ Knuth (1984, 1986)

\citep{knuth86a,knuth84} ⇒ (Knuth, 1984, 1986)

10.5.2　顺序编码制标注法

```
\citestyle{ustcnumerical}
```

```
\cite{knuth86a}                    ⇒ [2]
\citet{knuth86a}                   ⇒ Knuth[2]
\citet[chap.~2]{knuth86a}          ⇒ Knuth[2, chap. 2]
\citep{knuth86a}                   ⇒ [2]
\citep[chap.~2]{knuth86a}          ⇒ [2] chap. 2
\citep[see][]{knuth86a}            ⇒ see[2]
\citep[see][chap.~2]{knuth86a}     ⇒ see[2] chap. 2
\citet*{knuth86a}                  ⇒ Knuth[2]
\citep*{knuth86a}                  ⇒ [2]
\citet{knuth86a,tlc2}              ⇒ Knuth[2], Mittelbach et al.[3]
\citep{knuth86a,tlc2}              ⇒ [2,3]
\cite{knuth86a,knuth84}            ⇒ [1,2]
\citet{knuth86a,knuth84}           ⇒ Knuth[1,2]
\citep{knuth86a,knuth84}           ⇒ [1,2]
\cite{knuth86a,knuth84,tlc2}       ⇒ [1–3]
```

10.5.3 其他形式的标注

```
\citealt{tlc2}            ⇒ Mittelbach et al.3
\citealt*{tlc2}           ⇒ Mittelbach, Goossens, Braams, and Carlisle3
\citealp{tlc2}            ⇒ 3
\citealp*{tlc2}           ⇒ 3
\citealp{tlc2,knuth86a}   ⇒ 2,3
\citealp[pg.~32]{tlc2}    ⇒ 3 pg. 32
\citenum{tlc2}            ⇒ 3
\citetext{priv.\ comm.}   ⇒ [priv. comm.]
\citeauthor{tlc2}    ⇒ Mittelbach et al.
\citeauthor*{tlc2}   ⇒ Mittelbach, Goossens, Braams, and Carlisle
\citeyear{tlc2}      ⇒ 2004
\citeyearpar{tlc2}   ⇒ 2004
```

参考文献

Knuth D E. May 1984. Literate programming[J]. *The Computer Journal*. 27(2):97–111.

Knuth D E. 1986. Computers and Typesetting: A The TEXbook[M]. Reading, MA, USA: Addison-Wesley.

Mittelbach F, Goossens M, Braams J, et al. 2004. The LATEX Companion[M]. 2nd ed. Reading, MA, USA: Addison-Wesley.

附录 A　可行性分析结果

Describe the feasibility analysis results on allocated requirements.

描述对分配需求的可行性分析结果。

附录 B　需求建模

B.1　数据流图

B.1.1　顶层数据流图

<Draw the Top-level DFD here>

在这里画出顶层数据流图

B.1.2　层数据流图

<Draw the Level-0 DFD here>

在这里画出 0 层数据流图

B.1.3　层数据流图

<Draw the Level-1 DFD here>

在这里画出 1 层数据流图

B.2　数据字典

B.2.1　数据流说明

B.2.1.1　数据流 1 名称

<Title of the data flow should accord with the one in data flow diagram, and the Data description notions should be used. >

与数据流图中的名称一致，采用数据描述符号说明数据流的内容

B.2.1.2　数据流 2 名称

<Title of the data flow should accord with the one in data flow diagram, and the Data description notions should be used >

与数据流图中的名称一致，采用数据描述符号说明数据流的内容

B.2.2 数据存储说明

B.2.2.1 数据存储 1 名称

<Title of the data flow should accord with the one in data flow diagram, and the Data description notions should be used. The arrangement of the data in data store should also be described.>

与数据流图中的名称一致，采用数据描述符号说明数据流的内容，另外还需描述数据排列方式

B.2.2.2 数据存储 2 名称

<Title of the data flow should accord with the one in data flow diagram, and the Data description notions should be used.The arrangement of the data in data store should also be described.>

与数据流图中的名称一致，采用数据描述符号说明数据流的内容，另外还需描述数据排列方式

B.2.3 加工说明

B.2.3.1 加工 1 名称

<Use natural language, Decision table/Decision tree and Pseudocode to describe how to process the data flow>

采用自然语言，判断表/判断树，伪码的形式描述对数据流进行处理的过程

B.2.3.2 加工 2 名称

<Use natural language, Decision table/Decision tree and Pseudocode to describe how to process the data flow>

采用自然语言，判断表/判断树，伪码的形式描述对数据流进行处理的过程