软件学院 2023-2024 学年度第二学期

《软件工程理论与实践课程设计》
实验报告

班级：	
项目名称：	FileTrans--文档翻译前端系统
项目组组长：	
项目组成员：	学号: 姓名:＿＿＿＿＿
指导老师：	

目录

1. 项目概述

1.1. 项目基本介绍

File Translation Web System

1.1.1. UI 界面
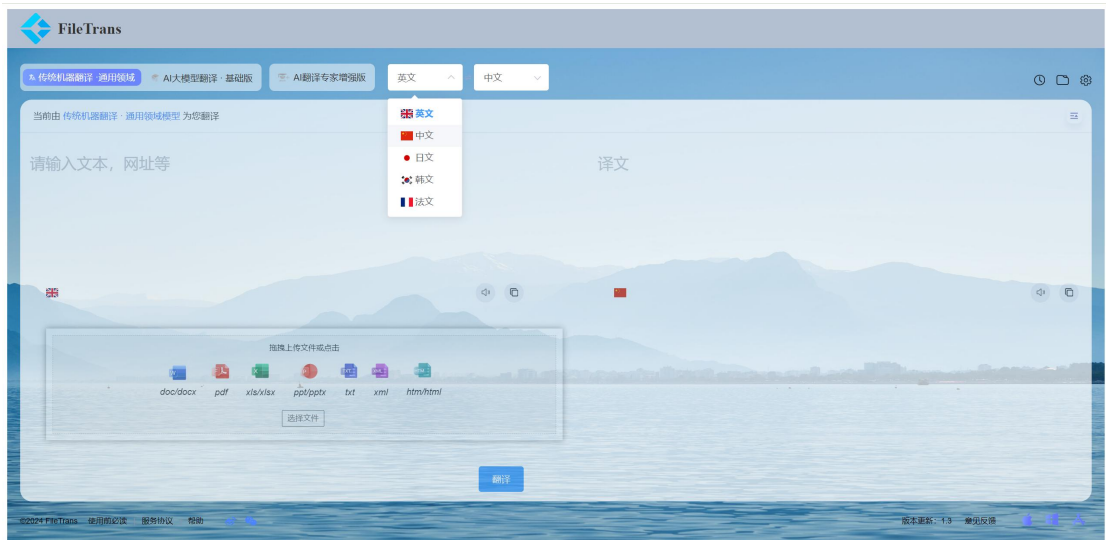
主界面
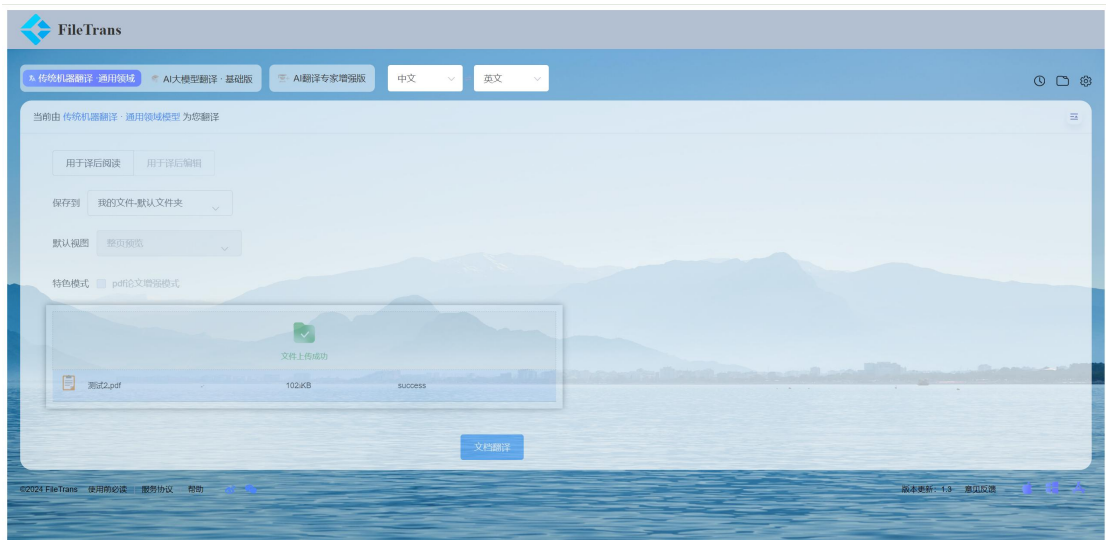
文档翻译界面

文档翻译结果界面

1.1.2. GitHub 仓库地址：

https://github.com/Peter9076/FileTrans

1.1.3. 项目介绍

FileTrans 是一个基于 Web 的翻译系统，用户可以通过公网访问，无需下载安装任何软件。这个系统提供了一个用户友好的界面，使得用户可以轻松地进行文本和文档的翻译。

FileTrans 的主要特点包括：

1. 多语言支持：支持包括英语、中文、法语、日语、韩语等在内的多种语言翻译。

2. 文档格式兼容性：能够处理多种文档格式，如 XML、HTML、XLS、XLSX、PPT、PPTX、DOC、DOC、XML 和 TXT，确保用户可以翻译各种类型的文档。

3. 在线对比与同步滚动：提供原文和译文的在线对比功能，并支持同步滚动，方便用户进行实时校对和编辑。

4. 文档缩放功能：用户可以根据需要调整文档的显示大小，以便更清晰地查看内容。

5. 公网访问：作为一个 Web 系统，FileTrans 可以通过任何连接到互联网的设备访问，无论用户身在何处，都可以轻松使用。

6. 翻译文档下载：用户可以在翻译完成后，轻松地将译文保存为 PDF 文件，以便于打印、分享或存档。

使用 FileTrans 非常简单，用户只需在浏览器中输入系统的网址，选择所需的语言和文档格式，上传文档或输入文本，然后点击"翻译"按钮即可。FileTrans 将自动处理翻译请求，并提供高质量的翻译结果。此外，FileTrans 是完全免费的，旨在为全球用户提供便捷、高效的翻译服务。无论是学术研究、商务沟通还是个人使用，FileTrans 都是一个理想的翻译解决方案。

1.1.4. 项目成员

FileTrans 由 开发完成

1.1.5. 目录结构描述

```
1.  ├───── css/  # 存放样式文件
2.  |     ├───── index.css  # 首页样式文件
3.  |     ├───── index.less  # 首页样式文件的扩展
4.  |     ├───── element.css  # Element UI 的样式文件
5.  |     └───── fonts/  # 字体文件夹
6.  |           └───── element-icons.ttf  # Element UI 的图标字体文件
7.  ├───── js/  # 存放 JavaScript 文件
8.  |     ├───── index.js  # 首页主脚本文件
9.  |     ├───── axios.min.js  # Axios 库的最小化版本，用于 HTTP 请求
10. |     ├───── cookies.js  # 用于处理 cookie 的工具
11. |     ├───── element.js  # Element UI 的主脚本文件
12. |     ├───── md5.js  # 用于生成 MD5 加密的工具
13. |     ├───── vue.js  # Vue.js 框架的主文件
14. |     └───── vue-uploader.js  # 用于处理文件上传的 Vue.js 插件
15. ├───── imgs/  # 存放图像文件
16. |     ├───── logo.png  # 网站 logo
17. |     └───── background.jpg  # 背景图片
18. ├───── index.html  # 网站首页 HTML 文件
19. ├───── Node.js/  # 存放 Node.js 相关文件
20. |     ├───── apps.js  # 应用程序的主文件
21. |     ├───── Translate.js  # 处理翻译功能的模块
22. |     ├───── res/  # 用于存放翻译之后的文档
23. |     ├───── tmp/  # 存放上传的文档
24. |     ├───── uploader-node.js  # 处理文件上传的 Node.js 脚本
25. |     ├───── package.json  # 项目依赖和配置信息
26. |     └───── package-lock.json  # 记录项目依赖的确切版本
```

1.1.6. 版本内容更新

FileTrans v1.3

协议

license GPL-3.0

1.2. 人员基本分工

作为项目的唯一负责人，承担项目的全部开发工作，包括后端和前端的开发，以及项目管理和文档编写。以下是他的主要职责：

1. Github 仓库管理：负责整个 Github 仓库的管理，包括代码的整理、归档以及版本控制。同时，编写详实的 README 文档，以便团队成员及外部人员能清晰理解项目。
2. 系统设计：积极参与系统设计，利用技术专长帮助设计出高效且易于维护的系统。
3. 用户界面设计：负责用户界面的设计和开发，注重用户体验，致力于创建既易于使用又美观的界面。
4. 系统流程分析：通过绘制时序图进行系统流程分析，以更好地理解和设计系统。
5. 文本翻译服务：负责与后台机器翻译服务的接口开发和维护，确保翻译服务的准确性和效率。
6. 文档翻译服务：开发文档翻译服务，使用户能通过上传文档获得翻译结果，提供更多便利。
7. 前端页面编写：完成小程序主页、拍照界面、获取翻译结果、翻译历史等页面的前端和后端代码编写，实现用户界面设计，并对代码进行详细测试。
8. 性能优化：专注于系统性能优化，通过合理的代码架构和算法优化，确保系统在高峰期的稳定运行。
9. 编写文档：负责编写清晰且详细的开发文档，以保证项目的可维护性和持续性。
10. 撰写需求：参与需求讨论和构思，确保项目需求文档的准确性和清晰性。
11. 进行系统设计：在深入理解项目需求后，参与系统设计，确保设计决策满足项目需求，并考虑系统的可扩展性和可维护性。
12. 辅助用户界面设计：优化用户页面，以用户为中心，提升用户体验。
13. 系统设计：参与系统架构的设计，负责组件设计及接口设计。
14. 语音合成功能：负责语音合成功能的开发和测试，确保其正常运行并与相关页面集成。
15. 页面编写：完成语言选择页面、文本编辑页面、语音翻译页面的前端和后端代码编写，实现用户界面设计和逻辑功能，并进行测试。
16. 编写文档：负责编写设计文档、开发文档、测试文档等，确保项目的可维护性和持续性。

作为唯一的负责人，将确保项目的每个方面都得到妥善处理，从需求分析到系统设计，再到前后端开发和文档编写，他都将全面负责，确保项目的成功实施和高质量交付。

2. 需求描述

2.1 功能性需求

2.1.1. 用户需求

1. 集成文本翻译（**Text Translation**）

1. 用户需求：
- 用户在输入框中输入文字，选择输入语言与目标语言，程序在输出框中给出翻译结果。
2. 用户需求标识：FileTransURTT

2. 集成文档翻译（**Document Translation**）

1. 用户需求：
- 用户可以选择上传文档进行翻译，并选择输入语言与目标语言，程序在输出框中给出翻译结果。
2. 用户需求标识：FileTransURDT

3. 集成文档上传（**Document Upload**）

1. 用户需求：
- 用户可以上传文档进行翻译，并在翻译完成后下载翻译后的文档。
2. 用户需求标识：FileTransURDU

4. 集成文档下载（**Document Download**）

1. 用户需求：
- 用户在翻译完成后，可以下载翻译后的文档。
2. 用户需求标识：FileTransURDD

5. 集成文档在线预览（**Document Online Preview**）

1. 用户需求：
- 用户在翻译完成后，可以在线预览原文档和翻译后的文档内容。
2. 用户需求标识：FileTransURDOP

2.1.2. 系统需求

1. 文本翻译（**Text Translation**）

1. 初始假设：
- 用户在输入框中输入文字，选择输入语言与目标语言，程序在输出框中给出翻译结果。

2. 正常状态：
- 用户在输入框中输入待翻译的文本，然后在下拉框中选择原文语种和译文语种。

3. 有哪些会出错：
- 输入的文本中包含无法识别的字符或语言。程序会提示用户重新输入。
- 输入的文本过长或复杂，程序无法进行翻译。程序会提示用户缩短输入文本。
- 网络连接不稳定，程序无法进行翻译。程序会提示用户检查网络连接并重试。

5. 完成的系统状态：
- 用户可以通过打开程序，并进入翻译界面来进行翻译，并在下拉菜单中选择相应的目标语言。
- 用户在输入框中输入待翻译的文本后，程序会进行翻译并在输出框中显示翻译结果。

2. 文档翻译（**Document Translation**）

1. 初始假设：
- 用户需要通过浏览器使用一个在线 WEB 系统，该 WEB 系统集成了第三方文档翻译功能
- 用户可以通过上传文档将文档中的待翻译文本识别成目标语言并显示到界面上。

2. 正常状态：
- 用户打开小程序，选择文档翻译功能，进入上传界面。用户可以选择上传文档，
用户需要选择待翻译的语言种类和目标语言种类。检测到用户按下翻译按钮时，系统应该
调用文档翻译服务对目标文档进行翻译，并在界面上显示翻译结果。
- 系统应该允许用户在翻译后重新选择文档，重新选择翻译语言并进行翻译。

3. 有哪些会出错：
- 系统权限不足，无法访问用户文档。
- 第三方文档翻译功能出现故障，导致无法完成翻译。

4. 其他活动：
- 系统应该保证用户隐私，不记录用户的文档翻译记录。
- 系统应该对用户文档进行保护，确保不被未授权的其他脚本访问。

5. 完成的系统状态：
- 用户可以通过文档翻译功能成功翻译文档中的文字。

3. 文档上传（**Document Upload**）

1. 初始假设：
- 用户希望通过上传文档来进行翻译，并在翻译完成后下载翻译后的文档。

2. 正常状态：

- 用户上传文档后，系统进行翻译，并在翻译完成后提供下载链接。
- 用户可以点击下载链接，下载翻译后的文档。

3. 有哪些会出错：
- 上传的文档格式不支持，无法进行翻译。系统应该提示用户上传支持的文档格式。

4. 其他活动：
- 系统应该保证用户隐私，不记录用户上传和下载的文档内容。
- 系统应该对上传进行保护，确保不被未授权的人访问。

5. 完成的系统状态：
- 用户可以通过上传文档进行翻译

4. 文档下载（**Document Download**）

1. 初始假设：
- 用户希望通过下载翻译后的文档内容。

2. 正常状态：
- 用户在翻译完成后，可以下载翻译后的文档。
- 系统应该提供下载链接，用户可以点击链接下载文档。

3. 有哪些会出错：
- 下载链接失效或无法访问。系统应该提示用户重新生成下载链接。
- 文档内容无法下载或下载缓慢。系统应该提示用户检查网络连接并重试。

4. 其他活动：
- 系统应该保证用户隐私，不记录用户下载的文档内容。
- 系统应该对下载的文档进行保护，确保不被未授权的人访问。

5. 完成的系统状态：
- 用户可以在翻译完成后下载翻译后的文档。

5. 文档在线预览（**Document Online Preview**）

1. 初始假设：
- 用户希望通过在线查看翻译后的文档内容。

2. 正常状态：
- 用户在翻译完成后，可以在线同步预览原文档和翻译后的文档内容。
- 系统应该提供文档预览功能，用户可以在不下载文档的情况下查看文档内容。

3. 有哪些会出错：
- 文档预览功能出现故障，无法正常显示文档内容。
- 文档内容无法加载或加载缓慢。系统应该提示用户检查网络连接并重试。

4. 其他活动：
- 系统应该保证用户隐私，不记录用户查看的文档内容。
- 系统应该对查看的文档进行保护，确保不被未授权的人访问。

5. 完成的系统状态：
- 用户可以在翻译完成后在线同步预览原文档和翻译后的文档内容。

2.2 非功能性需求

2.2.1 性能需求：
- 翻译速度：系统需在用户输入文本后 1 秒内提供翻译结果。
- 文档处理效率：对于用户上传的文档，系统应在 5 分钟内完成翻译并展示结果。
- 高并发处理能力：系统应能有效处理大量用户同时请求，确保性能稳定，不受用户量增加的影响。

2.2.2 安全性需求：
- 数据保护：系统必须严格保护用户的个人数据和使用信息，防止任何形式的数据泄露。
- 防御机制：系统应具备强大的安全防护措施，有效抵御 DDoS 攻击、SQL 注入等网络威胁。

2.2.3 可用性需求：
- 系统稳定性：系统应保持 99.9%的在线时间，确保服务的连续性。
- 故障恢复：在系统出现故障时，应能在 1 小时内迅速恢复，减少服务中断时间。

2.2.4 可维护性需求：
- 模块化与文档化：系统设计应模块化，且文档齐全，便于未来的维护和功能升级。
- 功能扩展性：系统应易于集成新语言和新增功能，以适应不断变化的用户需求。

2.2.5 可扩展性需求：
- 架构灵活性：系统架构应具备良好的扩展性，以便未来轻松添加新功能，如增加语言支持、语音翻译等。

2.2.6 用户体验需求：
- 界面友好性：用户界面应简洁直观，便于用户快速掌握各项功能的使用方法。
- 反馈机制：系统应设有便捷的用户反馈渠道，使用户能轻松报告问题和提供改进建议。

3. 系统设计

3.1 架构设计

FileTrans 采用分层架构的架构模式，架构示意图如下：
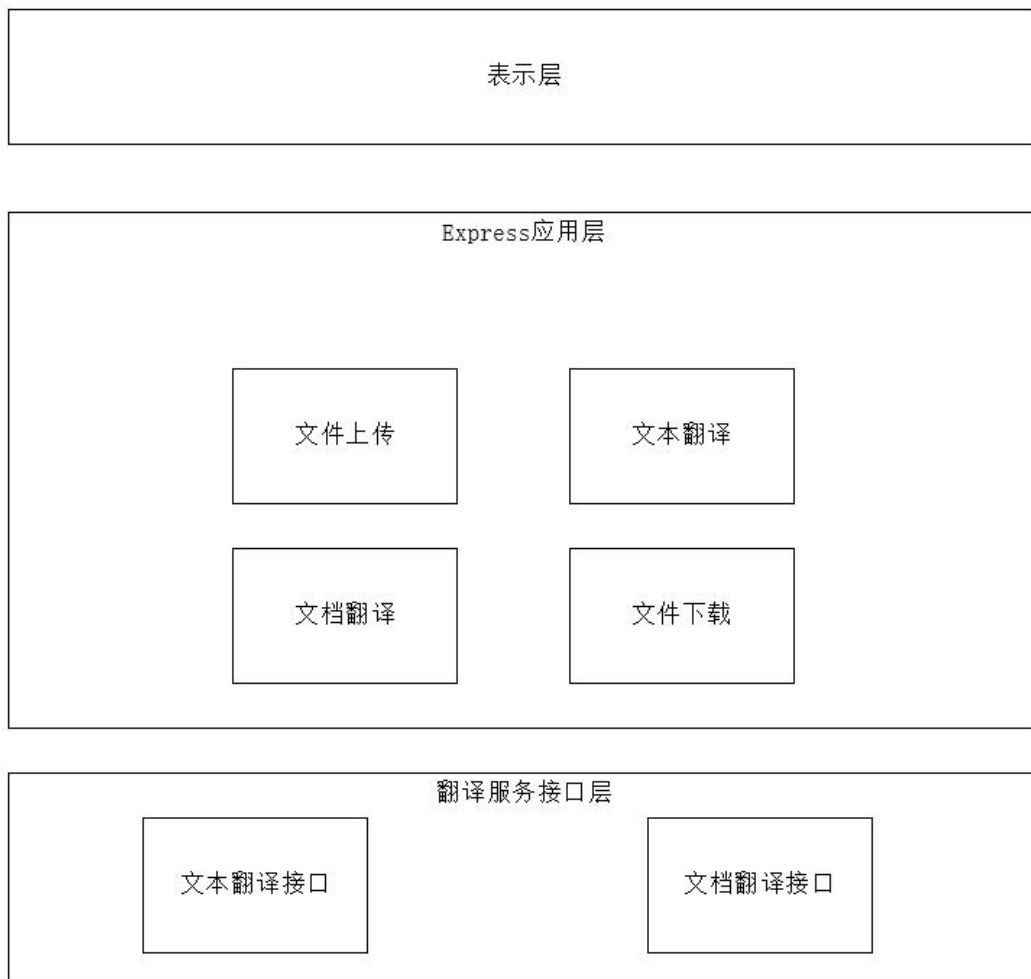
3.1.1. 表示层（Presentation Layer）

表示层作为用户与系统互动的桥梁，涵盖了用户界面、数据输入与输出等功能。在这一层，主要职责是将用户的请求有效地传递至系统的下一层级，并确保处理结果能够准确无误地反馈给用户。在我们的翻译系统中，表示层具体包括用户输入文本的界面、用户输入上传文本的界面、展示翻译结果的界面、以输出翻译内容的页面等。

3.1.2. Express 应用层（Express Application Layer）

Express 应用层是系统的核心层，它实现了翻译的核心算法和业务逻辑，包括文本处理、文本上传，文本下载等。这一层主要负责接收并处理表示层传递的请求，然后调用其他层的服务，最后将处理结果返回给表示层。在我们的 WEB 系统中，应用层负责：
1. 处理客户端：
- 文本输入
- 文档上传
2. 获取输出结果：
- 文本输出
- 文档预览
- 文档下载

3.1.3. 翻译服务接口层（Translate Service Interface Layer）

翻译服务接口层通过来自客户端的翻译请求，解析请求中的文本内容、源语言和目标语言等参数，然后将这些参数传递给后端的翻译引擎进行实际的翻译处理。处理完成后，接口层将翻译结果封装成 HTTP 响应并发送回 Express 应用层。在此过程中，接口层还需进行错误处理和安全性保障，如处理请求参数错误、翻译引擎故障等问题，并实施身份验证和数据加密等安全措施。总的来说，以上三个层级构成了一个完整的翻译软件系统，每个层级都负责不同的功能，各司其职。这 种分层架构模式使得系统更加清晰、易于扩展和维护。

3.2 界面原型设计

3.2.1. 主界面（Main Interface）

主界面是用户输入文本进行翻译的主要界面。
- **文本输入框**：位于页面中央，用户可以在此框内输入或粘贴需要翻译的文本。
- **翻译按钮**：紧邻文档上传组件边框，用户输入文本后点击此按钮即可开始翻译。
- **语言选择器**：位于页面顶部，用户可以在此选择源语言和目标语言。
- **翻译结果展示区**：位于文本输入框右边方，显示翻译后的文本结果。
- **复制按钮**：位于翻译结果展示区旁边和文本输入框两边，用户可以点击复制翻译后的文本和原文。

3.2.2. 文档上传界面（Document Upload Interface）

文档上传界面允许用户上传文档进行翻译。
- **文档选择按钮**：位于页面中央，用户可以点击此按钮选择要上传的文档。
- **上传文件列表**：显示已经上传过的文档。
- **语言选择器**：位于页面顶部，用户可以在此选择源语言和目标语言。
- **开始翻译按钮**：文档上传完成后，用户可以点击此按钮开始文档翻译。

3.2.3. 文档预览界面（Document Preview Interface）

文档预览界面允许用户在翻译前预览文档内容。
- **源文档预览区**：位于页面左侧，显示上传文档的内容。
- **翻译文档预览区**: 位于页面右侧，显示上传文档的内容。
- **文档缩放按钮**:位于页面顶部，用于同步放大和缩小文档。
- **文档下载按钮**:位于页面顶部，用于下载翻译文档。

3.3 详细设计

3.3.1. 组件设计
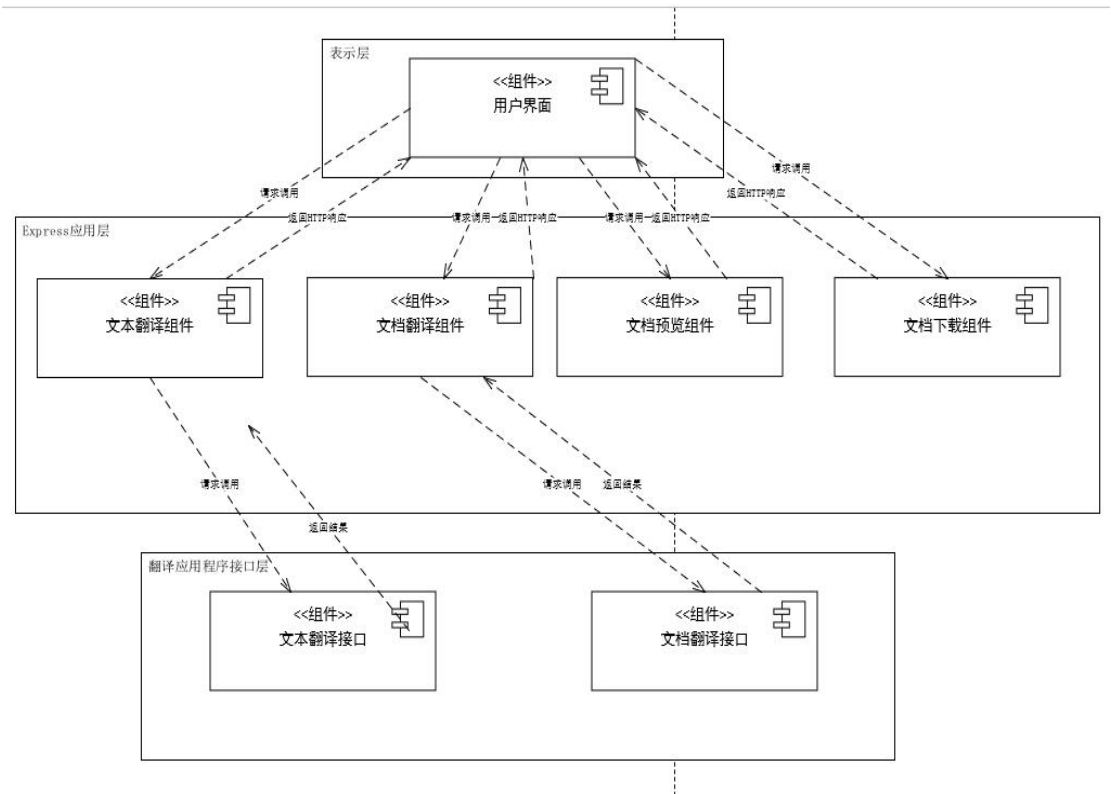
3.3.2. 组件接口设计

3.3.2.1.文档翻译接口
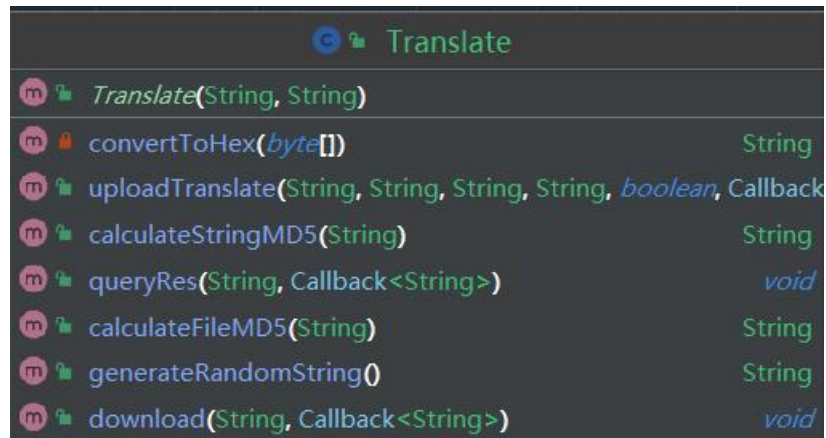
- constructor(appid, seckey): 构造函数，初始化 appid 和 seckey。

- generateRandomString(): 生成一个随机的字符串。

- calculateStringMD5(inputString): 计算字符串的 MD5 值。

- calculateFileMD5(filePath): 计算文件的 MD5 值。

- uploadTranslate(from, to, format, filePath, edit): 上传文件进行翻译，参数包括源语言、目标语言、文件格式、文件路径和是否编辑文件名。

- queryRes(tid): 查询翻译进度，参数为任务 ID。

- download(tid): 下载翻译后的文件，参数为任务 ID。

3.3.2.2Express 应用接口设计
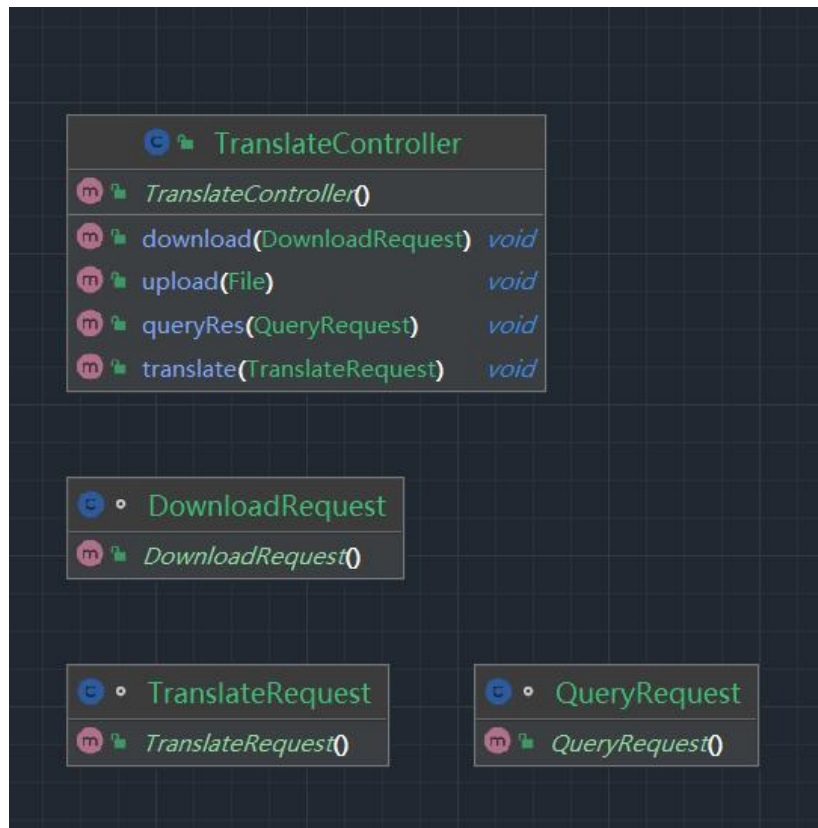
- app.post('/upload', multipartMiddleware, function(req, res)): 处理文件上传请求。

- app.options('/upload', function(req, res)): 处理上传请求的预检请求。

- app.options('/translate', function(req, res)): 处理翻译请求的预检请求。

- app.post('/translate', async function(req, res)): 处理翻译请求。

- app.options('/queryRes', function(req, res)): 处理查询结果请求的预检请求。

- app.post('/queryRes', async function(req, res)): 处理查询翻译结果的请求。

- app.options('/download', function(req, res)): 处理下载请求的预检请求。

- app.post('/download', async function(req, res)): 处理下载翻译后文件的请求。

- app.get('/upload', function(req, res)): 获取上传状态。

- app.get('/downloadFile/:identifier', function(req, res)): 通过标识符下载文件。

- app.get('/download/:identifier', function(req, res)): 通过标识符下载文件。

这些接口设计涵盖了文件上传、翻译处理、结果查询和文件下载等功能，为前端提供了清晰的调用方式和数据交互格式。

3.3.3. 系统流程分析
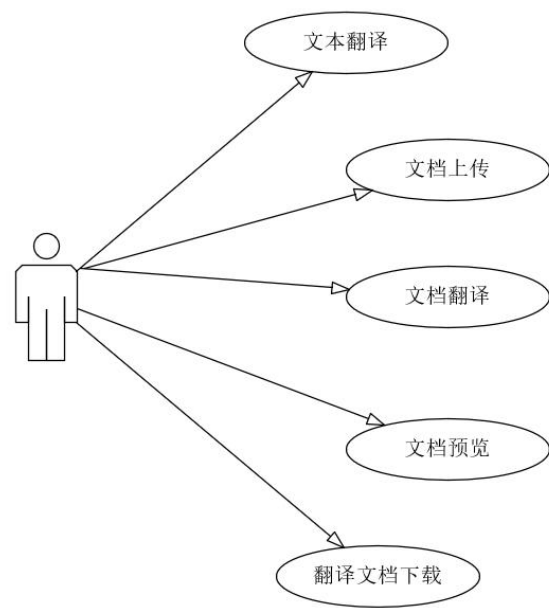
结合上述用例图，我们得出以下的时序图：

1.文本翻译时序图
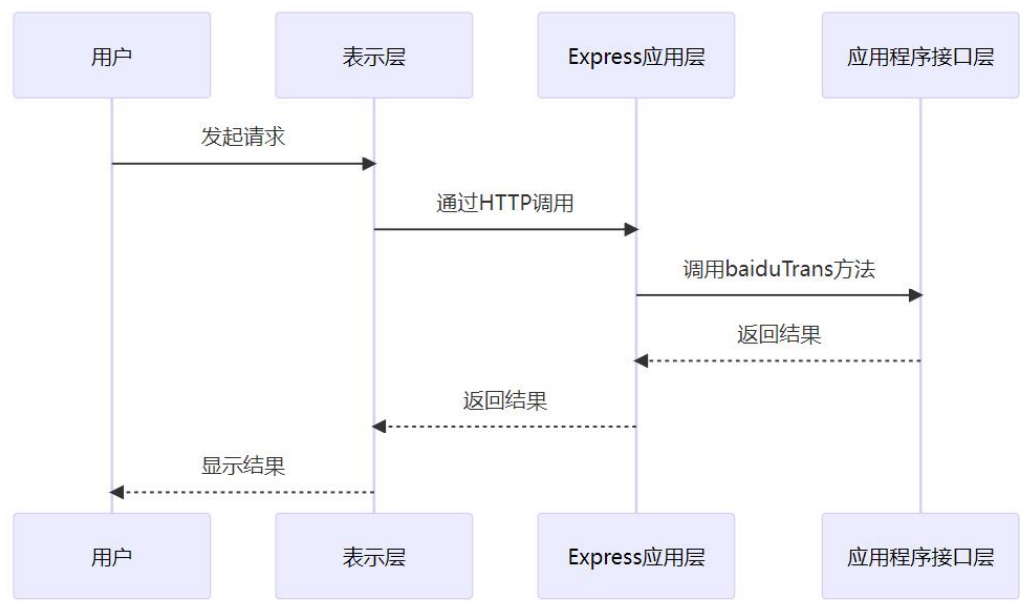
2.文档上传时序图
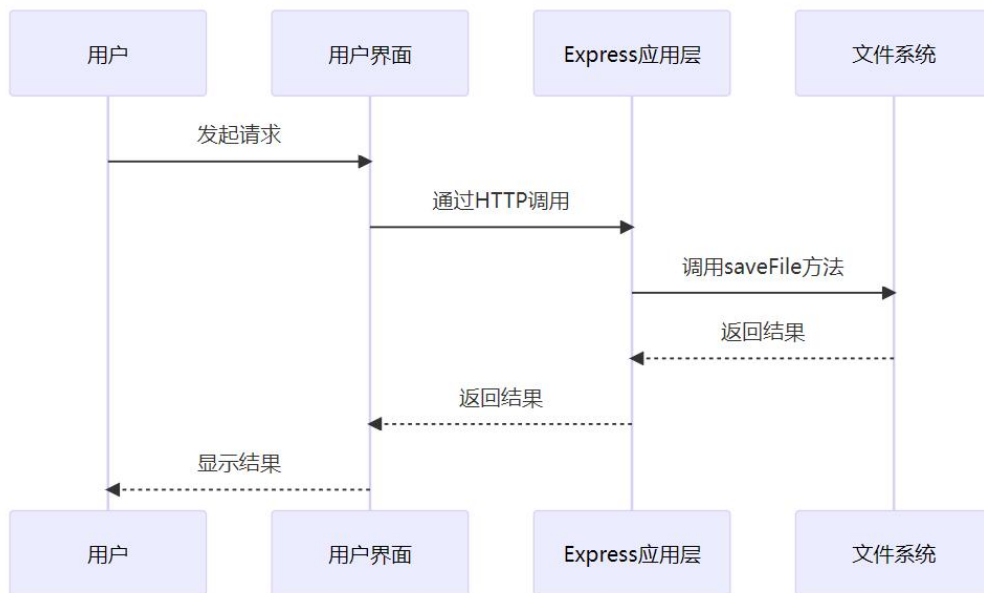
3.文档翻译时序图
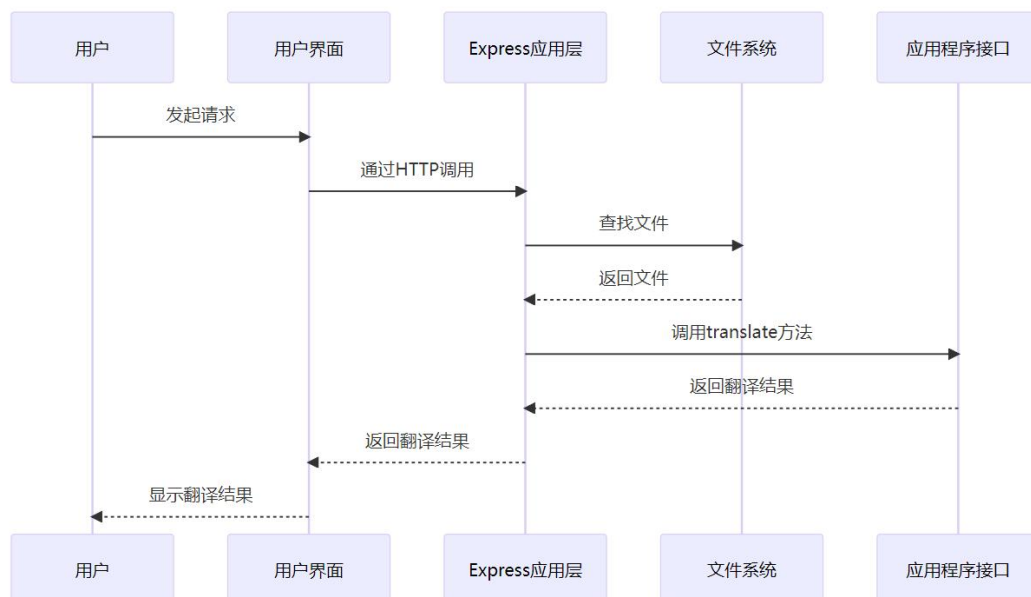
4.文档预览时序图
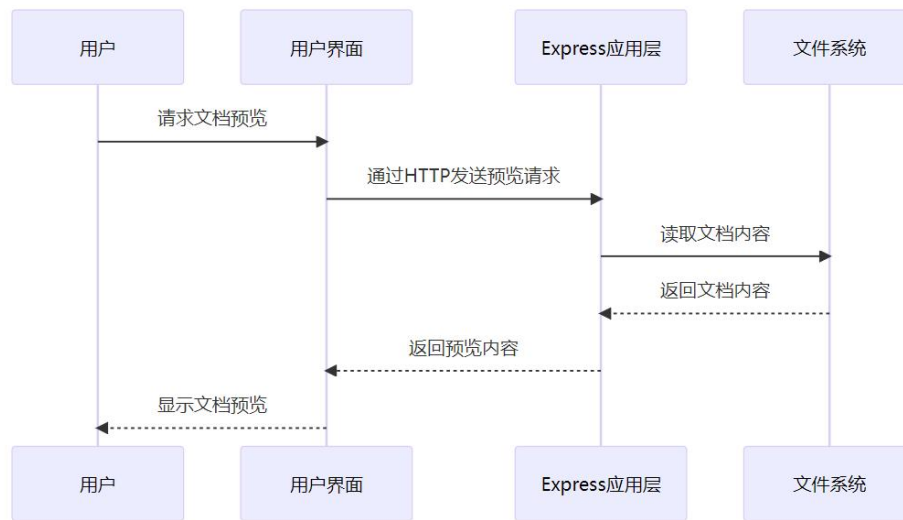
5.翻译文档下载时序图
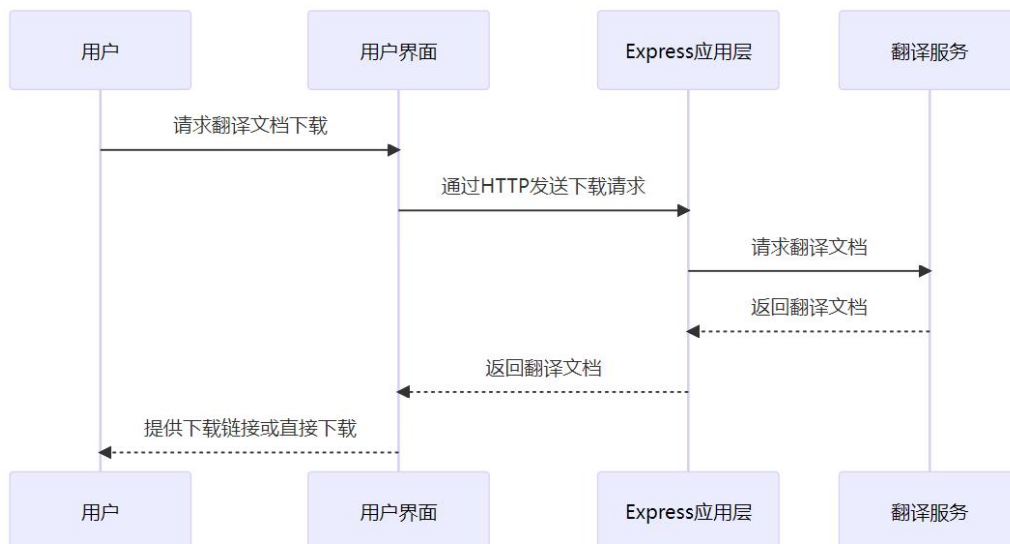
4. 系统实现

开发语言：HTML5+CSS3+ES5+Node.js

开发框架：Express+Vue2+ElementUI

开发环境：VSCode

4.1. css/

4.1.1. index.css

这段代码定义了文档翻译,文本翻译页面和文档预览页面的样式

```css
1 body {
2   overflow: hidden;
3 }
4 .el-container {
5   background-color: #E9EEF3;
6   height: 100vh;
7   overflow: hidden;
8 }
9
10 .page-content{
11   background-image: url('../imgs/ocean-4346633_1920.jpg');
12   background-size: cover;
13   background-size: 100% 100%; /* 高度为容器高度，宽度自动调整 */
14 }
15
16 .first{
17   -webkit-text-size-adjust: 100%;
18   -webkit-tap-highlight-color: rgba(0,0,0,0);
19   --antd-wave-shadow-color: #4d85ff;
20   --scroll-bar: 0;
21   --swiper-theme-color: #007aff;
22   --swiper-navigation-size: 44px;
23   font-feature-settings: "tnum","tnum";
24   color: rgba(0,0,0,.85);
25   font-size: 14px;
26   font-variant: tabular-nums;
27   line-height: 1.5715;
28   box-sizing: border-box;
29   display: flex;
```

```
30  flex: 1 1;
31  flex-direction: column;
32  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
33 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
34  /* padding: 16px 20px 0; */
35 }
36
37 .second{
38  -webkit-text-size-adjust: 100%;
39  -webkit-tap-highlight-color: rgba(0,0,0,0);
40  --antd-wave-shadow-color: #4d85ff;
41  --scroll-bar: 0;
42  --swiper-theme-color: #007aff;
43  --swiper-navigation-size: 44px;
44  font-feature-settings: "tnum","tnum";
45  color: rgba(0,0,0,.85);
46  font-size: 14px;
47  font-variant: tabular-nums;
48  line-height: 1.5715;
49  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
50 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
51  box-sizing: border-box;
52  display: flex;
53  flex: 1 1;
54  flex-direction: column;
55  height: calc(100vh - 95px);
56 }
57
58 .fav{
59  -webkit-text-size-adjust: 100%;
60  -webkit-tap-highlight-color: rgba(0,0,0,0);
61  --antd-wave-shadow-color: #4d85ff;
62  --scroll-bar: 0;
63  --swiper-theme-color: #007aff;
64  --swiper-navigation-size: 44px;
65  font-feature-settings: "tnum","tnum";
66  color: rgba(0,0,0,.85);
67  font-size: 14px;
68  font-variant: tabular-nums;
69  line-height: 1.5715;
70  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
71 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
72  box-sizing: border-box;
73  align-items: center;
```

```css
74    cursor: pointer;
75    display: flex;
76    position: relative;
77    z-index: 3;
78 }
79
80 .options-select{
81    -webkit-text-size-adjust: 100%;
82    -webkit-tap-highlight-color: rgba(0,0,0,0);
83    --antd-wave-shadow-color: #4d85ff;
84    --scroll-bar: 0;
85    --swiper-theme-color: #007aff;
86    --swiper-navigation-size: 44px;
87    font-feature-settings: "tnum","tnum";
88    color: rgba(0,0,0,.85);
89    font-size: 14px;
90    font-variant: tabular-nums;
91    line-height: 1.5715;
92    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
93 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
94    box-sizing: border-box;
95    align-items: center;
96    /* background: hsla(0,0%,100%,.9); */
97    border-radius: 8px;
98    display: flex;
99    margin-right: 16px;
100   padding: 4px 4px 13px 0;
101   position: relative;
102 }
103 .model{
104   -webkit-text-size-adjust: 100%;
105   -webkit-tap-highlight-color: rgba(0,0,0,0);
106   --antd-wave-shadow-color: #4d85ff;
107   --scroll-bar: 0;
108   --swiper-theme-color: #007aff;
109   --swiper-navigation-size: 44px;
110   font-feature-settings: "tnum","tnum";
111   color: rgba(0,0,0,.85);
112   font-size: 14px;
113   font-variant: tabular-nums;
114   line-height: 1.5715;
115   font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
116 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
117   box-sizing: border-box;
```

```
118   align-items: center;
119   background: hsla(0,0%,100%,.5);
120   border-radius: 8px;
121   display: flex;
122   padding: 4px;
123   position: relative;
124 }
125
126 .model-first{
127   -webkit-text-size-adjust: 100%;
128   -webkit-tap-highlight-color: rgba(0,0,0,0);
129   --antd-wave-shadow-color: #4d85ff;
130   --scroll-bar: 0;
131   --swiper-theme-color: #007aff;
132   --swiper-navigation-size: 44px;
133   font-feature-settings: "tnum","tnum";
134   color: rgba(0,0,0,.85);
135   font-size: 14px;
136   font-variant: tabular-nums;
137   line-height: 1.5715;
138   font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
139 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
140   box-sizing: border-box;
141   position: relative;
142 }
143 .model-second{
144   -webkit-text-size-adjust: 100%;
145   -webkit-tap-highlight-color: rgba(0,0,0,0);
146   --antd-wave-shadow-color: #4d85ff;
147   --scroll-bar: 0;
148   --swiper-theme-color: #007aff;
149   --swiper-navigation-size: 44px;
150   font-feature-settings: "tnum","tnum";
151   font-size: 14px;
152   font-variant: tabular-nums;
153   line-height: 1.5715;
154   font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
155 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
156   box-sizing: border-box;
157   color: #333;
158   position: relative;
159   white-space: nowrap;
160   z-index: 2;
161 }
```

```
162.model-content{
163  -webkit-text-size-adjust: 100%;
164  -webkit-tap-highlight-color: rgba(0,0,0,0);
165  --antd-wave-shadow-color: #4d85ff;
166  --scroll-bar: 0;
167  --swiper-theme-color: #007aff;
168  --swiper-navigation-size: 44px;
169  font-feature-settings: "tnum","tnum";
170  font-variant: tabular-nums;
171  line-height: 1.5715;
172  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
173 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
174  white-space: nowrap;
175  box-sizing: border-box;
176  align-items: center;
177  cursor: pointer;
178  display: flex;
179  font-size: 14px;
180  height: 26px;
181  padding: 0 10px;
182  background: linear-gradient(265.93deg,rgba(111,156,255,.38) 5.89%,
183rgba(115,129,255,.4) 53.76%,rgba(105,152,255,.4) 117.44%),
184linear-gradient(100.67deg,rgba(125,165,255,.95) .67%,#6978ff 64.63%);
185  border-radius: 8px;
186  color: #fff!important;
187}
188.model-span{
189  -webkit-text-size-adjust: 100%;
190  -webkit-tap-highlight-color: rgba(0,0,0,0);
191  --antd-wave-shadow-color: #4d85ff;
192  --scroll-bar: 0;
193  --swiper-theme-color: #007aff;
194  --swiper-navigation-size: 44px;
195  font-feature-settings: "tnum","tnum";
196  font-variant: tabular-nums;
197  line-height: 1.5715;
198  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
199 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
200  white-space: nowrap;
201  cursor: pointer;
202  font-size: 14px;
203  color: #fff!important;
204  box-sizing: border-box;
205  background: url(https://fanyi-cdn.cdn.bcebos.com/static/cat/asset/
```

```css
206icon-default.f70d4f93.png) 50% no-repeat;
207  background-size: 100%;
208  height: 10px;
209  margin-right: 4px;
210  width: 10px;
211  background-image: url(https://fanyi-cdn.cdn.bcebos.com/static/cat/
212asset/icon-active.f3c73772.png);
213}
214
215.ai{
216  -webkit-text-size-adjust: 100%;
217  -webkit-tap-highlight-color: rgba(0,0,0,0);
218  --antd-wave-shadow-color: #4d85ff;
219  --scroll-bar: 0;
220  --swiper-theme-color: #007aff;
221  --swiper-navigation-size: 44px;
222  font-feature-settings: "tnum","tnum";
223  color: rgba(0,0,0,.85);
224  font-size: 14px;
225  font-variant: tabular-nums;
226  line-height: 1.5715;
227  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
228 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
229  box-sizing: border-box;
230  margin-left: 6px;
231  position: relative;
232  height: 34px;
233}
234
235.ai-first{
236  -webkit-text-size-adjust: 100%;
237  -webkit-tap-highlight-color: rgba(0,0,0,0);
238  --antd-wave-shadow-color: #4d85ff;
239  --scroll-bar: 0;
240  --swiper-theme-color: #007aff;
241  --swiper-navigation-size: 44px;
242  font-feature-settings: "tnum","tnum";
243  font-size: 14px;
244  font-variant: tabular-nums;
245  line-height: 1.5715;
246  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
247 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
248  box-sizing: border-box;
249  color: #333;
```

```css
250  position: relative;
251  white-space: nowrap;
252  z-index: 2;
253}
254
255.ai-content{
256  -webkit-text-size-adjust: 100%;
257  -webkit-tap-highlight-color: rgba(0,0,0,0);
258  --antd-wave-shadow-color: #4d85ff;
259  --scroll-bar: 0;
260  --swiper-theme-color: #007aff;
261  --swiper-navigation-size: 44px;
262  font-feature-settings: "tnum","tnum";
263  font-variant: tabular-nums;
264  line-height: 1.5715;
265  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
266 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
267  color: #333;
268  white-space: nowrap;
269  box-sizing: border-box;
270  align-items: center;
271  cursor: pointer;
272  display: flex;
273  font-size: 14px;
274  height: 26px;
275  margin-top: 5px;
276  padding: 0 10px;
277}
278.ai-span{
279  -webkit-text-size-adjust: 100%;
280  -webkit-tap-highlight-color: rgba(0,0,0,0);
281  --antd-wave-shadow-color: #4d85ff;
282  --scroll-bar: 0;
283  --swiper-theme-color: #007aff;
284  --swiper-navigation-size: 44px;
285  font-feature-settings: "tnum","tnum";
286  font-variant: tabular-nums;
287  line-height: 1.5715;
288  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
289 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
290  color: #333;
291  white-space: nowrap;
292  cursor: pointer;
293  font-size: 14px;
```

```css
294  box-sizing: border-box;
295  background: url(https://fanyi-cdn.cdn.bcebos.com/static/cat/asset/
296icon-default.4a033c55.png) 50% no-repeat;
297  background-size: 100%;
298  height: 12px;
299  margin-right: 6px;
300  width: 12px;
301}
302
303.expert{
304  -webkit-text-size-adjust: 100%;
305  -webkit-tap-highlight-color: rgba(0,0,0,0);
306  --antd-wave-shadow-color: #4d85ff;
307  --scroll-bar: 0;
308  --swiper-theme-color: #007aff;
309  --swiper-navigation-size: 44px;
310  font-feature-settings: "tnum","tnum";
311  color: rgba(0,0,0,.85);
312  font-size: 14px;
313  font-variant: tabular-nums;
314  line-height: 1.5715;
315  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
316 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
317  box-sizing: border-box;
318  align-items: center;
319  background: hsla(0,0%,100%,.5);
320  border-radius: 8px;
321  display: flex;
322  padding: 4px;
323  position: relative;
324  margin-left: 12px;
325}
326
327.expert-content{
328      -webkit-text-size-adjust: 100%;
329    -webkit-tap-highlight-color: rgba(0,0,0,0);
330    --antd-wave-shadow-color: #4d85ff;
331    --scroll-bar: 0;
332    --swiper-theme-color: #007aff;
333    --swiper-navigation-size: 44px;
334    font-feature-settings: "tnum","tnum";
335    font-variant: tabular-nums;
336    line-height: 1.5715;
337    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
```

```css
338        YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
339        color: #333;
340        white-space: nowrap;
341        box-sizing: border-box;
342        align-items: center;
343        cursor: pointer;
344        display: flex;
345        font-size: 14px;
346        padding: 0 10px;
347        height: 34px;
348  }
349  .expert-span{
350    -webkit-text-size-adjust: 100%;
351    -webkit-tap-highlight-color: rgba(0,0,0,0);
352    --antd-wave-shadow-color: #4d85ff;
353    --scroll-bar: 0;
354    --swiper-theme-color: #007aff;
355    --swiper-navigation-size: 44px;
356    font-feature-settings: "tnum","tnum";
357    font-variant: tabular-nums;
358    line-height: 1.5715;
359    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
360  YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
361    color: #333;
362    white-space: nowrap;
363    cursor: pointer;
364    font-size: 14px;
365    box-sizing: border-box;
366    background: url(https://fanyi-cdn.cdn.bcebos.com/static/cat/asset/
367  icon-default.4a033c55.png) 50% no-repeat;
368    background-size: 100%;
369    height: 12px;
370    margin-right: 6px;
371    background-image: url(https://fanyi-cdn.cdn.bcebos.com/static/cat/
372  asset/icon-enhance-default.40808218.png);
373    width: 17px;
374  }
375
376  .content{
377    -webkit-text-size-adjust: 100%;
378    -webkit-tap-highlight-color: rgba(0,0,0,0);
379    --antd-wave-shadow-color: #4d85ff;
380    --scroll-bar: 0;
381    --swiper-theme-color: #007aff;
```

```css
382    --swiper-navigation-size: 44px;
383    font-feature-settings: "tnum","tnum";
384    color: rgba(0,0,0,.85);
385    font-size: 14px;
386    font-variant: tabular-nums;
387    line-height: 1.5715;
388    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
389 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
390    box-sizing: border-box;
391    background: #fff;
392    border-radius: 18px;
393    display: flex;
394    flex: 1 1;
395    flex-direction: column;
396    height: calc(100% - 106px);
397    opacity: 0.7;
398 }
399
400 .header-select{
401    -webkit-text-size-adjust: 100%;
402    -webkit-tap-highlight-color: rgba(0,0,0,0);
403    --antd-wave-shadow-color: #4d85ff;
404    --scroll-bar: 0;
405    --swiper-theme-color: #007aff;
406    --swiper-navigation-size: 44px;
407    font-feature-settings: "tnum","tnum";
408    color: rgba(0,0,0,.85);
409    font-size: 14px;
410    font-variant: tabular-nums;
411    line-height: 1.5715;
412    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
413 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
414    box-sizing: border-box;
415    align-items: center;
416    display: flex;
417    flex: 1 1;
418    position: relative;
419 }
420
421 .content-header{
422    -webkit-text-size-adjust: 100%;
423    -webkit-tap-highlight-color: rgba(0,0,0,0);
424    --antd-wave-shadow-color: #4d85ff;
425    --scroll-bar: 0;
```

```css
426    --swiper-theme-color: #007aff;
427    --swiper-navigation-size: 44px;
428    font-feature-settings: "tnum","tnum";
429    color: rgba(0,0,0,.85);
430    font-size: 14px;
431    font-variant: tabular-nums;
432    line-height: 1.5715;
433    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
434 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
435    box-sizing: border-box;
436    align-items: center;
437    display: flex;
438    height: 50px;
439    justify-content: space-between;
440    padding: 0 15px 0 20px;
441    position: relative;
442    width: 100%;
443 }
444
445 .content-header-text{
446    -webkit-text-size-adjust: 100%;
447    -webkit-tap-highlight-color: rgba(0,0,0,0);
448    --antd-wave-shadow-color: #4d85ff;
449    --scroll-bar: 0;
450    --swiper-theme-color: #007aff;
451    --swiper-navigation-size: 44px;
452    font-feature-settings: "tnum","tnum";
453    font-size: 14px;
454    font-variant: tabular-nums;
455    line-height: 1.5715;
456    font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
457 YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
458    box-sizing: border-box;
459    color: #333;
460 }
461
462 .content-header-text-text{
463    -webkit-text-size-adjust: 100%;
464    -webkit-tap-highlight-color: rgba(0,0,0,0);
465    --antd-wave-shadow-color: #4d85ff;
466    --scroll-bar: 0;
467    --swiper-theme-color: #007aff;
468    --swiper-navigation-size: 44px;
469    font-feature-settings: "tnum","tnum";
```

```
470  font-size: 14px;
471  font-variant: tabular-nums;
472  line-height: 1.5715;
473  font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
474  YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
475  box-sizing: border-box;
476  color: #333;
477  flex:1
478 }
479
480 .content-header-text-type{
481  -webkit-text-size-adjust: 100%;
482  -webkit-tap-highlight-color: rgba(0,0,0,0);
483  --antd-wave-shadow-color: #4d85ff;
484  --scroll-bar: 0;
     --swiper-theme-color: #007aff;
     --swiper-navigation-size: 44px;
     font-feature-settings: "tnum","tnum";
     font-size: 14px;
     font-variant: tabular-nums;
     line-height: 1.5715;
     font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
    YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
     box-sizing: border-box;
     color: #4d85ff;
     margin: 0 4px;
   }

   .content-header-icon{
     -webkit-text-size-adjust: 100%;
     -webkit-tap-highlight-color: rgba(0,0,0,0);
     --antd-wave-shadow-color: #4d85ff;
     --scroll-bar: 0;
     --swiper-theme-color: #007aff;
     --swiper-navigation-size: 44px;
     font-feature-settings: "tnum","tnum";
     font-size: 14px;
     font-variant: tabular-nums;
     line-height: 1.5715;
     font-family: Arial,PingFang SC,Hiragino Sans GB,STHeiti,Microsoft
    YaHei,WenQuanYi Micro Hei,sans-serif,noto-fanyi!important;
     box-sizing: border-box;
     color: #333;
     flex:1
```

```
      }
```

4.1.2. index.less

index.css 文件的扩展

```
 1body{
 2     overflow:hidden;
 3}
 4
 5.el-container{
 6     background-color: #E9EEF3;
 7     height: 100vh;
 8     overflow:hidden;
 9}
10.el-header, .el-footer {
11     background-color: #B3C0D1;
12     color: #333;
13     text-align: center;
14     display: flex;
15     align-items: center;
16     // line-height: 60px;
17  }
18  .el-main {
19
20     background-color: #E9EEF3;
21     color: #333;
22     text-align: center;
23     position: relative;
24     width: 70%;
25     margin: auto;
26     margin-top: 10vh;
27     display: flex;
28     justify-content: space-between;
29     // line-height: 160px;
30     .top{
31         margin-top: 3vh;
32         width: 100%;
33         // border: 1px wheat solid;
34         display: flex;
35         justify-content: space-between;
36         .l{
37             width: 47%;
38             display: flex;
```

```
39              justify-content: space-between;
40              align-items: center;
41              .el-select{
42                  width: 25%;
43              }
44              .el-button{
45              }
46              .tit{
47                  color: grey;
48              }
49
50          }
51          .r{
52              display: flex;
53              align-items: center;
54              i{
55                  margin-right: 15px;
56                  font-size: 25px;
57              }
58          }
59
60      }
61      .text{
62          display: flex;
63          justify-content: space-between;
64          margin-top: 3vh;
65          .textFrom,.textTo{
66              // border: 1px wheat solid;
67              width: 47%;
68              .el-textarea{
69                  textarea{
70                      height: 100px;
71                  }
72              }
73              i{
74                  float: left;
75                  margin: 1vh;
76              }
77          }
78      }
79      .history{
80          // border: 1px wheat solid;
81          width: 47%!important;
82          float: left;
```

```
83          margin-top: 1vh;
84          .hisTop{
85              display: flex;
86              justify-content: space-between;
87              margin: 1vh 0;
88          }
89          .el-table{
90          }
91          .buttonD{
92              border: none;
93              background: none;
94              button{
95                  border: 0px;
96              }
97          }
98      }
99      .favorites{
100         overflow:hidden;
101         overflow-y: hidden;
102
103         width: 47%!important;
104         float: right;
105             // border: 1px wheat solid;
106         margin-top: 1vh;
107         .hisTop{
108             display: flex;
109             justify-content: space-between;
110             margin: 1vh 0;
111         }
112         .el-table{
113         }
114         .buttonD{
115             border: none;
116             background: none;
117             button{
118                 border: 0px;
119             }
120         }
121     }
122 }
123
124 body > .el-container {
125   margin-bottom: 40px;
126 }
```

```
127
128  .el-container:nth-child(5) .el-aside,
129  .el-container:nth-child(6) .el-aside {
130    line-height: 260px;
131  }
132
133  .el-container:nth-child(7) .el-aside {
134    line-height: 320px;
135  }
136
137// 响应式
138
139@media screen and (max-width: 1500px) {
140    .el-main {
141        width: 100%;
142    }
143}
144@media screen and (max-width: 750px) {
145    .el-header, .el-footer {
146        background-color: #B3C0D1;
147        color: #333;
148        text-align: left;
149        // line-height: 60px;
150        display: flex;
151        justify-content: space-between;
152        i{
153            margin-left: 10px;
154        }
155    }
156    .titleIcon{
157        color: gray;
158    }
159      .el-main {
160        background-color: #E9EEF3;
161        color: #333;
162        text-align: center;
163        position: relative;
164        width: 100%;
165        margin: auto!important;
166        // line-height: 160px;
167        .top{
168            margin-top: 3vh;
169            width: 100%;
170            // border: 1px wheat solid;
```

```
171              display: flex;
172          flex-wrap: wrap;
173          justify-content: space-between;
174          .l{
175              z-index: 999;
176              width: 100%;
177              .el-select{
178                  width: 100%;
179              }
180              .el-button{
181                  margin-left: 10px;
182                  float: right;
183              }
184          }
185          .r{
186              float: right;
187              width: 100%;
188              margin-top: -120px;
189              display: none;
190              i{
191                  color: gray;
192              }
193          }
194      }
195      .text{
196          display: flex;
197          justify-content: space-between;
198          flex-wrap: wrap;
199          margin-top: 3vh;
200          .textFrom,.textTo{
201              // border: 1px wheat solid;
202              width: 100%;
203              .el-textarea{
204                  textarea{
205                      height: 100px;
206                  }
207              }
208              i{
209                  float: left;
210                  margin: 1vh;
211              }
212          }
213      }
214      .history{
```

```
215            // border: 1px wheat solid;
216            width: 100%!important;
217            margin-top: 1vh;
218            .hisTop{
219                display: flex;
220                justify-content: space-between;
221                margin: 1vh 0;
222            }
223            .el-table{
224                .el-table_1_column_3{
225                    // display: none;
226                }
227            }
228            .buttonD{
229                border: none;
230                background: none;
231            }
232        }
233        .favorites{
234
235            width: 100%!important;
236        }
237
238    }
239}
240.el-table td, .el-table th.is-leaf {
241    border-bottom: 1px solid rgba(0, 0, 0,0)!important;
242}
```

4.1.5. fonts

4.1.5.1.element-icons.ttf

字体文件，扩展名为 .ttf，代表 TrueType Font。这种类型的文件包含了用于显示图标或字符的矢量图形数据。

4.1.5.2.element-icons.woff

一个 Web 开放字体格式（Web Open Font Format）文件，扩展名为 .woff。这种格式的字体文件专门为 Web 设计，旨在提供比传统字体格式（如 .ttf 或 .otf）更好的性能和压缩率。

4.2. **imgs/**

通过将所有图像文件放在一个专门的文件夹中，可以方便地组织和管理这些资源。有助于保持项目结构的清晰，使得开发者能够快速找到所需的图像文件。

4.3. js/

4.3.1. axios.min.js

Axios 库的压缩版本。Axios 是一个流行的基于 Promise 的 HTTP 客户端，用于浏览器和 Node.js 环境中发送 HTTP 请求。它允许开发者以简单和直观的方式与后端服务器进行通信。

```
1  import { warn, isFunction, isObject } from 'core/util'
2
3  interface AsyncComponentOptions {
4    loader: Function
5    loadingComponent?: any
6    errorComponent?: any
7    delay?: number
8    timeout?: number
9    suspensible?: boolean
10   onError?: (
11     error: Error,
12     retry: () => void,
13     fail: () => void,
14     attempts: number
15   ) => any
16 }
17
18 type AsyncComponentFactory = () => {
19   component: Promise<any>
20   loading?: any
21   error?: any
22   delay?: number
23   timeout?: number
24 }
25
26 /**
27  * v3-compatible async component API.
28  * @internal the type is manually declared in <root>/types/
29 v3-define-async-component.d.ts
30  * because it relies on existing manual types
```

```
31 */
32 export function defineAsyncComponent(
33   source: (() => any) | AsyncComponentOptions
34 ): AsyncComponentFactory {
35   if (isFunction(source)) {
36     source = { loader: source } as AsyncComponentOptions
37   }
38
39   const {
40     loader,
41     loadingComponent,
42     errorComponent,
43     delay = 200,
44     timeout, // undefined = never times out
45     suspensible = false, // in Vue 3 default is true
46     onError: userOnError
47   } = source
48
49   if (__DEV__ && suspensible) {
50     warn(
51       `The suspensible option for async components is not supported
52 in Vue2. It is ignored.`
53     )
54   }
55
56   let pendingRequest: Promise<any> | null = null
57
58   let retries = 0
59   const retry = () => {
60     retries++
61     pendingRequest = null
62     return load()
63   }
64
65   const load = (): Promise<any> => {
66     let thisRequest: Promise<any>
67     return (
68       pendingRequest ||
69       (thisRequest = pendingRequest =
70         loader()
71           .catch(err => {
72             err = err instanceof Error ? err : new Error(String(err))
73             if (userOnError) {
74               return new Promise((resolve, reject) => {
```

```
75            const userRetry = () => resolve(retry())
76            const userFail = () => reject(err)
77            userOnError(err, userRetry, userFail, retries + 1)
78          })
79        } else {
80          throw err
81        }
82      })
83      .then((comp: any) => {
84        if (thisRequest !== pendingRequest && pendingRequest) {
85          return pendingRequest
86        }
87        if (__DEV__ && !comp) {
88          warn(
89            `Async component loader resolved to undefined. ` +
90              `If you are using retry(), make sure to return its
91 return value.`
92          )
93        }
94        // interop module default
95        if (
96          comp &&
97          (comp.__esModule || comp[Symbol.toStringTag] === 'Module')
98        ) {
99          comp = comp.default
100        }
101        if (__DEV__ && comp && !isObject(comp) && !isFunction(comp)) {
102          throw new Error(`Invalid async component load result: ${comp}`)
103        }
104        return comp
105      }))
106  )
107 }
108
109 return () => {
110   const component = load()
111
112   return {
113     component,
114     delay,
115     timeout,
116     error: errorComponent,
117     loading: loadingComponent
     }
```

```
  }
}
```

4.3.2. cookie.js

提供了一系列操作浏览器 cookie 的方法

```
 1 import { isFunction, warn } from 'core/util'
 2 import { currentInstance } from './currentInstance'
 3 import type { Component } from 'types/component'
 4
 5 export interface InjectionKey<T> extends Symbol {}
 6
 7 export function provide<T>(key: InjectionKey<T> | string |
 8 number, value: T) {
 9   if (!currentInstance) {
10     if (__DEV__) {
11       warn(`provide() can only be used inside setup().`)
12     }
13   } else {
14     // TS doesn't allow symbol as index type
15     resolveProvided(currentInstance)[key as string] = value
16   }
17 }
18
19 export function resolveProvided(vm: Component): Record<string, any> {
20   // by default an instance inherits its parent's provides object
21   // but when it needs to provide values of its own, it creates its
22   // own provides object using parent provides object as prototype.
23   // this way in `inject` we can simply look up injections from direct
24   // parent and let the prototype chain do the work.
25   const existing = vm._provided
26   const parentProvides = vm.$parent && vm.$parent._provided
27   if (parentProvides === existing) {
28     return (vm._provided = Object.create(parentProvides))
29   } else {
30     return existing
31   }
32 }
33
34 export function inject<T>(key: InjectionKey<T> | string): T | undefined
35 export function inject<T>(
36   key: InjectionKey<T> | string,
```

```
37   defaultValue: T,
38   treatDefaultAsFactory?: false
39 ): T
40 export function inject<T>(
41   key: InjectionKey<T> | string,
42   defaultValue: T | (() => T),
43   treatDefaultAsFactory: true
44 ): T
45 export function inject(
46   key: InjectionKey<any> | string,
47   defaultValue?: unknown,
48   treatDefaultAsFactory = false
49 ) {
50   // fallback to `currentRenderingInstance` so that this can be called in
51   // a functional component
52   const instance = currentInstance
53   if (instance) {
54     // #2400
55     // to support `app.use` plugins,
56     // fallback to appContext's `provides` if the instance is at root
57     const provides = instance.$parent && instance.$parent._provided
58
59     if (provides && (key as string | symbol) in provides) {
60       // TS doesn't allow symbol as index type
61       return provides[key as string]
62     } else if (arguments.length > 1) {
63       return treatDefaultAsFactory && isFunction(defaultValue)
64         ? defaultValue.call(instance)
65         : defaultValue
66     } else if (__DEV__) {
67       warn(`injection "${String(key)}" not found.`)
68     }
69   } else if (__DEV__) {
70     warn(`inject() can only be used inside setup() or functional
71       components.`)
   }
 }
```

4.3.3. element.js

用于快速构建页面应用的框架
```
1 /**
```

```
2  * Note: also update dist/vue.runtime.mjs when adding new exports to
3  this file.
4  */
5
6 export const version: string = '__VERSION__'
7
8 export {
9   ref,
10  shallowRef,
11  isRef,
12  toRef,
13  toRefs,
14  unref,
15  proxyRefs,
16  customRef,
17  triggerRef,
18  Ref,
19  ToRef,
20  ToRefs,
21  UnwrapRef,
22  ShallowRef,
23  ShallowUnwrapRef,
24  RefUnwrapBailTypes,
25  CustomRefFactory
26 } from './reactivity/ref'
27
28 export {
29  reactive,
30  isReactive,
31  isReadonly,
32  isShallow,
33  isProxy,
34  shallowReactive,
35  markRaw,
36  toRaw,
37  ReactiveFlags,
38  ShallowReactive,
39  UnwrapNestedRefs
40 } from './reactivity/reactive'
41
42 export { readonly, shallowReadonly, DeepReadonly } from './reactivity/
43 readonly'
44
45 export {
```

```
46  computed,
47  ComputedRef,
48  WritableComputedRef,
49  WritableComputedOptions,
50  ComputedGetter,
51  ComputedSetter
52} from './reactivity/computed'
53
54export {
55  watch,
56  watchEffect,
57  watchPostEffect,
58  watchSyncEffect,
59  WatchEffect,
60  WatchOptions,
61  WatchOptionsBase,
62  WatchCallback,
63  WatchSource,
64  WatchStopHandle
65} from './apiWatch'
66
67export {
68  EffectScope,
69  effectScope,
70  onScopeDispose,
71  getCurrentScope
72} from './reactivity/effectScope'
73
74export { DebuggerOptions, DebuggerEvent, DebuggerEventExtraInfo } from
75  './debug'
76
77export { TrackOpTypes, TriggerOpTypes } from './reactivity/operations'
78
79export { provide, inject, InjectionKey } from './apiInject'
80
81export { h } from './h'
82export { getCurrentInstance } from './currentInstance'
83export { useSlots, useAttrs, useListeners, mergeDefaults } from
84  './apiSetup'
85export { nextTick } from 'core/util/next-tick'
86export { set, del } from 'core/observer'
87
88export { useCssModule } from './sfc-helpers/useCssModule'
89export { useCssVars } from './sfc-helpers/useCssVars'
```

```
90
91 /**
92  * @internal type is manually declared in <root>/types/v3-define-
93 component.d.ts
94  */
95 export function defineComponent(options: any) {
96   return options
   }

   export { defineAsyncComponent } from './apiAsyncComponent'

   export * from './apiLifecycle'
```

4.3.4. index.js

表示层，页面逻辑实现的 JS 文件，实现了以下功能：

1. **多语言翻译**：用户可以选择原文语言和译文语言，输入原文后，点击翻译按钮，使用百度翻译 API 进行翻译，并将翻译结果显示在页面上。
2. **文件上传和翻译**：用户可以上传多种格式的文件（如 PDF、DOC、PPT 等），然后选择翻译语言方向，系统将上传的文件发送到后端进行处理和翻译。
3. **复制功能**：用户可以复制原文或翻译结果到剪贴板。
4. **响应式布局**：根据屏幕宽度自动调整布局，以适应不同设备（如手机、平板电脑和桌面电脑）。
5. **同步滚动**：如果用户正在查看翻译后的文档，原文和译文文档会同步滚动，以便用户可以同时查看原文和译文。
6. **文件下载**：翻译完成后，用户可以下载翻译后的文件。
7. **放大和缩小**：用户可以放大或缩小查看的文档。

代码中使用了 Vue.js 的响应式数据绑定、计算属性、方法、生命周期钩子等特性，以及 jQuery 和一些第三方库（如百度翻译 API、Simple-Uploader 文件上传库等）来实现上述功能。

```
1 new Vue({
2   el: "#app",
3   data() {
4       return {
5           btnLoading: false,
6           dialogOpen: false,
7           uploaderSuc: false,
8           licon:'flag-icon-gb',
9           ricon:'flag-icon-cn',
10          yiwenType:'',
```

```
11          fileName: '',
12          type: false,
13          identifier: "",
14          suc: false,
15          tid: null,
16          ltid: null,
17          timerId: null,
18          url: null,
19          fileUrl: '',
20          lfileUrl: '',
21          fileType: null,
22          lsuc: false,
23          rsuc: false,
24          selectOptions1: [
25              {
26                  value: 'en',
27                  label: '英文',
28                  flagClass: 'flag-icon-gb'
29              },
30              {
31                  value: 'zh',
32                  label: '中文',
33                  flagClass: 'flag-icon-cn'
34              },
35              {
36                  value: 'jp',
37                  label: '日文',
38                  flagClass: 'flag-icon-jp'
39              },
40              {
41                  value: 'kor',
42                  label: '韩文',
43                  flagClass: 'flag-icon-kr'
44              },
45              {
46                  value: 'fra',
47                  label: '法文',
48                  flagClass: 'flag-icon-fr'
49              }
50          ],
51          selectOptions2: [
52              {
53                  value: 'en',
54                  label: '英文',
```

```
55                    flagClass: 'flag-icon-gb'
56                },
57                {
58                    value: 'zh',
59                    label: '中文',
60                    flagClass: 'flag-icon-cn'
61                },
62                {
63                    value: 'jp',
64                    label: '日文',
65                    flagClass: 'flag-icon-jp'
66                },
67                {
68                    value: 'kor',
69                    label: '韩文',
70                    flagClass: 'flag-icon-kr'
71                },
72                {
73                    value: 'fra',
74                    label: '法文',
75                    flagClass: 'flag-icon-fr'
76                }
77            ],
78            selectValue1: 'en',//原文语言
79            selectValue2: 'zh',//译文语言
80            textareaFrom: '',
81            textareaTo: '',
82            tableList: {
83                list1: '原文语言',
84                list2: '译文',
85                list3: '时间',
86                // list4:'删除记录',
87                list4: '',
88                list5: '译文语言'
89            },
90            tableList2: {
91                list1: '原文语言',
92                list2: '译文',
93                list3: '时间',
94                // list4:'删除记录',
95                list4: '',
96                list5: '译文语言'
97            },
98            history: [],
```

44

```
 99              favorites: [],
100              isPhone: false,
101              attrs: {
102                  accept: '.pptx,.html,.ppt,.pdf,application/vnd.ms-excel,
103application/vnd.openxmlformats-officedocument.spreadsheetml.sheet,text/
104plain,.doc,.docx,.xml,application/msword,application/
105vnd.openxmlformats-officedocument.wordprocessingml.document'
106              },
107              options: {
108                  // https://github.com/simple-uploader/Uploader/tree/
109develop/samples/Node.js
110                  target: 'http://localhost:3000/upload',
111                  testChunks: false
112              },
113          }
114      },
115      created() {
116          const that = this
117          window.screenWidth = document.body.clientWidth
118          that.screenWidth = window.screenWidth
119          console.log(window.screenWidth)
120          if (window.screenWidth <= 750) {
121              that.isPhone = true
122          } else {
123              that.isPhone = false
124          }
125          /**
126           * 读取 cookie
127           */
128          /**
129           * 如果没有 Cookie 创建
130           */
131          // 历史翻译记录 如果不存在 cookie 创建一个
132          const his = []
133          if (!cookie('history')) {
134              try {
135                  cookie.set('history', JSON.stringify(his), 0.375)
136              } catch (e) { }
137          }
138          // 收藏夹 如果不存在 cookie 创建一个
139          if (!cookie('favorites')) {
140              try {
141                  cookie.set('favorites', JSON.stringify(his), 3650)
142              } catch (e) { }
```

```
143            }
144            // 读取到 data 中
145            this.history = JSON.parse(cookie('history'))
146            this.favorites = JSON.parse(cookie('favorites'))
147            console.log(cookie())
148            console.log(JSON.parse(cookie('history')))
149            console.log(JSON.parse(cookie('favorites')))
150        },
151    mounted() {
152            if (this.$refs.lInput) {
153                const textareaElement = this.$refs.lInput.$el.
154 querySelector('textarea');
155                textareaElement.style.border = 'none';
156                textareaElement.style.outline = 'none'; // 去掉焦点时的轮廓
157            }
158            if (this.$refs.lSelect) {
159                const lselectElement = this.$refs.lSelect.$el.
160 querySelector('.el-input__inner');
161                lselectElement.style.border = 'none';
162                lselectElement.style.boxShadow = 'none';
163                lselectElement.style.height = '41px';
164            }
165            if (this.$refs.rSelect) {
166                const rselectElement = this.$refs.rSelect.$el.
167 querySelector('.el-input__inner');
168                rselectElement.style.border = 'none';
169                rselectElement.style.boxShadow = 'none';
170                rselectElement.style.height = '41px';
171            }
172
173            if (this.$refs.rInput) {
174                // 修改 textarea 的样式，去掉边框
175                const rtextareaElement = this.$refs.rInput.$el.
176 querySelector('textarea');
177                rtextareaElement.style.border = 'none';
178                rtextareaElement.style.outline = 'none'; // 去掉焦点时的轮廓
179            }
180            /**
181             * 监控 窗口 实现 部分 控件的显示和隐藏
182             */
183            const that = this
184            window.onresize = () => {
185                return (() => {
186                    window.screenWidth = document.body.clientWidth
```

```
187            that.screenWidth = window.screenWidth
188            console.log(window.screenWidth)
189            if (window.screenWidth <= 750) {
190                that.isPhone = true
191            } else {
192                that.isPhone = false
193            }
194        })()
195    }
196 },
197 watch: {
198     btnLoading(val) {
199         if (val) {
200             console.log(val)
201             this.timerId = setInterval(() => {
202                 if (!this.lsuc)
203                     this.queryRes();
204                 if (!this.rsuc)
205                     this.queryRRes();
206             }, 1000);
207         } else {
208             clearInterval(this.timerId);
209         }
210     },
211     suc(newVal) {
212         if (newVal) {
213             this.$nextTick(() => {
214                 this.setupSyncScrolling();
215             });
216         }
217     },
218     selectValue1(newVal){
219         switch(newVal){
220             case 'en':{
221                 this.licon='flag-icon-gb'
222                 break;
223             }
224             case 'zh':{
225                 this.licon='flag-icon-cn'
226                 break;
227             }
228             case 'jp':{
229                 this.licon='flag-icon-jp'
230                 break;
```

```
231                }
232            case 'kor':{
233                this.licon='flag-icon-kr'
234                break;
235            }
236            case 'fra':{
237                this.licon='flag-icon-fr'
238                this.break;
239            }
240        }
241    },
242    selectValue2(newVal){
243        switch(newVal){
244            case 'en':{
245                this.ricon='flag-icon-gb'
246                break;
247            }
248            case 'zh':{
249                this.ricon='flag-icon-cn'
250                break;
251            }
252            case 'jp':{
253                this.ricon='flag-icon-jp'
254                break;
255            }
256            case 'kor':{
257                this.ricon='flag-icon-kr'
258                break;
259            }
260            case 'fra':{
261                this.ricon='flag-icon-fr'
262                break;
263            }
264        }
265    },
266    },
267    methods: {
268        youDao() {
269            /**
270             * 处理请求参数
271             */
272            var appid = '20240603002068567';
273            var key = 'Jck4366oyBJx4cWsZABL';//注意：暴露 appSecret，
274有被盗用造成损失的风险
```

```
275            var salt = (new Date).getTime();
276            var curtime = Math.round(new Date().getTime() / 1000);
277            var query = this.textareaFrom;
278            // var from = 'zh-CHS';
279            var from = this.selectValue1;
280            // var to = 'en';
281            var to = this.selectValue2;
282            // console.log('---',str1);
283
284            var sign = MD5(appid + query + salt + key);
285            const that = this
286            $.ajax({
287                url: 'https://fanyi-api.baidu.com/api/trans/vip/translate',
288                type: 'get',
289                dataType: 'jsonp',
290                data: {
291                    q: query,
292                    appid: appid,
293                    salt: salt,
294                    from: from,
295                    to: to,
296                    sign: sign,
297                },
298                success: function (data) {
299                    // 渲染 翻译结果
300                    that.textareaTo = data.trans_result[0].dst
301                    /**
302                     * 调用 函数 把结果保存到 cookie
303                     */
304                    that.textareaFromChange()
305                }
306                // headers:{
307                //     referer:'',
308                //     host:'10.63.0.43:5500'
309                // },
310                // url:'https://fanyi.baidu.com/langdetect',
311                //  type: 'post',
312                // dataType: 'jsonp',
313                // data: {
314                //    query:'time'
315                // },
316                // success: function (data) {
317                //     console.log(data)
318                // }
```

```
319             })
320             function truncate(q) {
321                 var len = q.length;
322                 if (len <= 20) return q;
323                 return q.substring(0, 10) + len + q.substring(len - 10, len);
324             }
325             function str2utf8(str) {
326                 encoder = new TextEncoder('utf8');
327                 return encoder.encode(str);
328             }
329         },
330     del(index, num, type) {
331         console.log(type)
332         if (num === '1') {
333             if (type === 'h') {
334                 this.history.splice(index, num)
335             } else if (type === 'f') {
336                 this.favorites.splice(index, num)
337             }
338         } else if (num === 'all') {
339             if (type === 'h') {
340                 this.history = []
341             } else if (type === 'f') {
342                 this.favorites = []
343             }
344         }
345         this.$message({
346             message: '删除成功',
347             type: 'success'
348         });
349         // 更新 Cookie
350         cookie.set('history', JSON.stringify(this.history), 0.375)
351         cookie.set('favorites', JSON.stringify(this.favorites), 3650)
352     },
353     textareaFromChange() {
354         /**
355          * 添加 翻译 记录
356          */
357         const time = new Date()
358         const h = time.getHours()//时
359         const m = time.getMinutes()//分
360         const addHistory = {
361             originalText: this.textareaFrom,
362             translation: this.textareaTo,
```

```
363                 time: h + ':' + m,
364                 isFav: false
365             }
366         // const addFavorites = {
367         //     originalText: this.textareaFrom,
368         //     translation: this.textareaTo,
369         //     time: h+':'+m,
370         //     isFav:false
371         // }
372         this.history.unshift(addHistory)
373         // this.favorites.unshift(addFavorites)
374         /**
375          * 把记录保存到 cookie 内
376          */
377         cookie.set('history', JSON.stringify(this.history), 0.1)
378         // cookie.set('favorites',JSON.stringify(this.favorites), 3650)
379     },
380     addFavorites() {
381         const time = new Date()
382         const h = time.getHours()//时
383         const m = time.getMinutes()//分
384         if (this.textareaFrom !== '' && this.textareaTo !== '') {
385             this.favorites.unshift({
386                 originalText: this.textareaFrom,
387                 translation: this.textareaTo,
388                 time: h + ':' + m,
389                 isFav: true
390             })
391             this.$message({
392                 message: '收藏成功',
393                 type: 'success'
394             });
395         } else {
396             this.$message.error('无法收藏空内容');
397         }
398     },
399     copyFrom(){
400         const that = this
401         copyToClip(this.textareaFrom, '已经成功复制到剪贴板')
402         function copyToClip(content, message) {
403             if (content !== '') {
404                 var aux = document.createElement("input");
405                 aux.setAttribute("value", content);
406                 document.body.appendChild(aux);
```

```
407                    aux.select();
408                    document.execCommand("copy");
409                    document.body.removeChild(aux);
410                    that.$message({
411                        message: message,
412                        type: 'success'
413                    });
414                } else {
415                    that.$message.error('建议您先去翻译一下再来复制哦!');
416                }
417            }
418        },
419        copy() {
420            const that = this
421            copyToClip(this.textareaTo, '已经成功复制到剪贴板')
422            function copyToClip(content, message) {
423                if (content !== '') {
424                    var aux = document.createElement("input");
425                    aux.setAttribute("value", content);
426                    document.body.appendChild(aux);
427                    aux.select();
428                    document.execCommand("copy");
429                    document.body.removeChild(aux);
430                    that.$message({
431                        message: message,
432                        type: 'success'
433                    });
434                } else {
435                    that.$message.error('建议您先去翻译一下再来复制哦!');
436                }
437            }
438        },
439        add(index, num, type, scop, how) {
440            if (how) {
441                // console.log( this.history[scop.$index] )
442                this.favorites.unshift(this.history[index])
443                cookie.set('favorites', JSON.stringify(this.favorites),
444 0.375)
445                // this.history[index].isFav = !this.history[index].isFav
446                // console.log( this.history[index].isFav )
447            } else {
448                this.favorites.splice(0, 1)
449                cookie.set('favorites', JSON.stringify(this.favorites),
450 0.375)
```

52

```
451                 }
452                 this.history[index].isFav = !this.history[index].isFav
453         },
454     handleFileAdded(files, event) {
455         console.log(files)
456         // 将文件信息传递给父组件
457         switch (files.fileType) {
458             case "application/pdf": {
459                 this.fileType = "pdf"
460                 break;
461             }
462             case "text/plain": {
463                 this.fileType = "txt"
464                 break;
465             }
466             case "text/xml": {
467                 this.fileType = "xml"
468             }
469             case "text/html": {
470                 this.fileType = "html"
471                 break;
472             }
473             case "application/vnd.ms-excel": {
474                 this.fileType = "xls"
475                 break;
476             }
477             case "application/vnd.openxmlformats-officedocument.
478 spreadsheetml.sheet": {
479                 this.fileType = "xlsx"
480                 break;
481             }
482             case "application/vnd.ms-powerpoint": {
483                 this.fileType = "ppt"
484                 break;
485             }
486             case "application/vnd.openxmlformats-officedocument.
487 wordprocessingml.document": {
488                 this.fileType = "docx";
489                 break;
490             }
491             case "application/msword": {
492                 this.fileType = "doc";
493                 break;
494             }
```

```
495            case "application/vnd.openxmlformats-officedocument.
496presentationml.presentation": {
497                this.fileType = "pptx"
498                break;
499            }
500        }
501    },
502    fileSuccess(rootFile, file, message, chunk) {
503        this.identifier = "uploader-" + rootFile.uniqueIdentifier
504 + ".1";
505        console.log(this.identifier)
506        this.uploaderSuc = true;
507        this.type = true;
508        this.fileName = file.name;
509    },
510    openDialog() {
511        this.dialogOpen = true;
512    },
513    closeDialog() {
514        this.dialogOpen = false;
515    },
516    transDoc() {
517        this.$notify({
518            title: '警告',
519            message: '请选择正确的翻译语言方向，否则将无法翻译文档！',
520            type: 'warning',
521            duration: 2000,// 设置持续时间为 10000 毫秒 (10 秒)
522            customClass: 'custom-notification' // 使用自定义样式
523        });
524        setTimeout(() => {
525          if (!this.identifier) {
526                this.$message({
527                    type: 'warning',
528                    message: '请上传文件后再进行文档翻译'
529                });
530                return;
531          }
532          switch(this.selectValue1){
533              case 'zh':{
534                  this.yiwenType='中文-'
535                  break;
536              }
537              case 'en':{
538                  this.yiwenType='英文-'
```

54

```
539                         break;
540                     }
541                 case 'jp':{
542                         this.yiwenType='日语-'
543                         break;
544                     }
545                 case 'kor':{
546                         this.yiwenType='韩语-'
547                         break;
548                     }
549                 case 'fra':{
550                         this.yiwenType='法语-'
551                         break;
552                     }
553             }

554
555         switch(this.selectValue2){
556             case 'zh':{
557                     this.yiwenType+='中文'
558                     break;
559                 }
560             case 'en':{
561                     this.yiwenType+='英语'
562                     break;
563                 }
564             case 'jp':{
565                     this.yiwenType+='日语'
566                     break;
567                 }
568             case 'kor':{
569                     this.yiwenType+='韩语'
570                     break;
571                 }
572             case 'fra':{
573                     this.yiwenType+='法语'
574                     break;
575                 }
576         }

577
578         const that = this;
579         $.ajax({
580             url: 'http://localhost:3000/translate',
581             type: 'post',
582             contentType: 'application/json',
```

```
583                    data: JSON.stringify({
584                        identifier: this.identifier,
585                        from: this.selectValue1,
586                        to: this.selectValue2,
587                        format: this.fileType
588                    }),
589                    success: function (data) {
590                        that.tid = data.tid;
591                        that.ltid = data.ltid;
592                        that.btnLoading = true;
593                    }
594                })
595            }, 2000);
596        },
597        downloadFile() {
598            const fileUrl = "http://localhost:3000/downloadFile/" +
599 this.url;
600            window.open(fileUrl);
601        },
602        setupSyncScrolling() {
603            const container1 = this.$refs.pdfContainer1;
604            const container2 = this.$refs.pdfContainer2;
605
606            container1.addEventListener('scroll', () => {
607                container2.scrollTop = container1.scrollTop;
608            });
609
610            container2.addEventListener('scroll', () => {
611                container1.scrollTop = container2.scrollTop;
612            });
613        },
614        queryRes() {
615            const that = this;
616            $.ajax({
617                url: 'http://localhost:3000/queryRes',
618                type: 'post',
619                contentType: 'application/json',
620                data: JSON.stringify({
621                    tid: this.tid,
622                }),
623                success: function (data) {
624                    if (data.data.status == 314) {
625                        that.lsuc = true;
626                        if (that.lsuc && that.rsuc) {
```

```
627                         that.btnLoading = false;
628                         that.suc = true;
629                     }
630                     $.ajax({
631                         url: 'http://localhost:3000/download',
632                         type: 'post',
633                         contentType: 'application/json',
634                         data: JSON.stringify({
635                             tid: that.tid,
636                         }),
637                         success: function (data) {
638                             that.url = data.url
639                             that.fileUrl = "http://localhost:3000/
640 static/" + data.url;
641                         }
642                     })
643                 }
644             }
645         })
646     },
647     queryRRes() {
648         const that = this;
649         $.ajax({
650             url: 'http://localhost:3000/queryRes',
651             type: 'post',
652             contentType: 'application/json',
653             data: JSON.stringify({
654                 tid: this.ltid,
655             }),
656             success: function (data) {
657                 if (data.data.status == 314) {
658                     that.rsuc = true;
659                     if (that.lsuc && that.rsuc) {
660                         that.btnLoading = false;
661                         that.suc = true;
662                     }
663                     $.ajax({
664                         url: 'http://localhost:3000/download',
665                         type: 'post',
666                         contentType: 'application/json',
667                         data: JSON.stringify({
668                             tid: that.ltid,
669                         }),
670                         success: function (data) {
```

```
671                                    that.lfileUrl = "http://localhost:3000/
672static/" + data.url;
673                                }
674                            })
                        }
                    }
                })
            },
            fangda(){
                const pdfViewer1=this.$refs.pdfViewer1;
                pdfViewer1.zoomIn();
                const pdfViewer2=this.$refs.pdfViewer2;
                pdfViewer2.zoomIn();
            },
            suoxiao(){
                const pdfViewer1=this.$refs.pdfViewer1;
                pdfViewer1.zoomOut();
                const pdfViewer2=this.$refs.pdfViewer2;
                pdfViewer2.zoomOut();
            }
        }
    })
```

4.3.5. md5.js

这段代码是一个 JavaScript 实现的 MD5 哈希函数。MD5（Message Digest Algorithm 5）是一种广泛使用的密码散列函数，它能够产生一个 128 位的散列值，通常用于确保信息传输的完整一致性。

```
1  var MD5 = function (string) {
2
3      function RotateLeft(lValue, iShiftBits) {
4          return (lValue<<iShiftBits) | (lValue>>>(32-iShiftBits));
5      }
6
7      function AddUnsigned(lX,lY) {
8          var lX4,lY4,lX8,lY8,lResult;
9          lX8 = (lX & 0x80000000);
10         lY8 = (lY & 0x80000000);
11         lX4 = (lX & 0x40000000);
12         lY4 = (lY & 0x40000000);
13         lResult = (lX & 0x3FFFFFFF)+(lY & 0x3FFFFFFF);
14         if (lX4 & lY4) {
```

```
15          return (lResult ^ 0x80000000 ^ lX8 ^ lY8);
16      }
17      if (lX4 | lY4) {
18          if (lResult & 0x40000000) {
19              return (lResult ^ 0xC0000000 ^ lX8 ^ lY8);
20          } else {
21              return (lResult ^ 0x40000000 ^ lX8 ^ lY8);
22          }
23      } else {
24          return (lResult ^ lX8 ^ lY8);
25      }
26  }

27
28  function F(x,y,z) { return (x & y) | ((~x) & z); }
29  function G(x,y,z) { return (x & z) | (y & (~z)); }
30  function H(x,y,z) { return (x ^ y ^ z); }
31  function I(x,y,z) { return (y ^ (x | (~z))); }

32
33  function FF(a,b,c,d,x,s,ac) {
34      a = AddUnsigned(a, AddUnsigned(AddUnsigned(F(b, c, d), x), ac));
35      return AddUnsigned(RotateLeft(a, s), b);
36  };

37
38  function GG(a,b,c,d,x,s,ac) {
39      a = AddUnsigned(a, AddUnsigned(AddUnsigned(G(b, c, d), x), ac));
40      return AddUnsigned(RotateLeft(a, s), b);
41  };

42
43  function HH(a,b,c,d,x,s,ac) {
44      a = AddUnsigned(a, AddUnsigned(AddUnsigned(H(b, c, d), x), ac));
45      return AddUnsigned(RotateLeft(a, s), b);
46  };

47
48  function II(a,b,c,d,x,s,ac) {
49      a = AddUnsigned(a, AddUnsigned(AddUnsigned(I(b, c, d), x), ac));
50      return AddUnsigned(RotateLeft(a, s), b);
51  };

52
53  function ConvertToWordArray(string) {
54      var lWordCount;
55      var lMessageLength = string.length;
56      var lNumberOfWords_temp1=lMessageLength + 8;
57      var lNumberOfWords_temp2=(lNumberOfWords_temp1-
58 (lNumberOfWords_temp1 % 64))/64;
```

```
59          var lNumberOfWords = (lNumberOfWords_temp2+1)*16;
60          var lWordArray=Array(lNumberOfWords-1);
61          var lBytePosition = 0;
62          var lByteCount = 0;
63          while ( lByteCount < lMessageLength ) {
64              lWordCount = (lByteCount-(lByteCount % 4))/4;
65              lBytePosition = (lByteCount % 4)*8;
66              lWordArray[lWordCount] = (lWordArray[lWordCount] |
67 (string.charCodeAt(lByteCount)<<lBytePosition));
68              lByteCount++;
69          }
70          lWordCount = (lByteCount-(lByteCount % 4))/4;
71          lBytePosition = (lByteCount % 4)*8;
72          lWordArray[lWordCount] = lWordArray[lWordCount] |
73 (0x80<<lBytePosition);
74          lWordArray[lNumberOfWords-2] = lMessageLength<<3;
75          lWordArray[lNumberOfWords-1] = lMessageLength>>>29;
76          return lWordArray;
77      };
78
79      function WordToHex(lValue) {
80          var WordToHexValue="",WordToHexValue_temp="",lByte,lCount;
81          for (lCount = 0;lCount<=3;lCount++) {
82              lByte = (lValue>>>(lCount*8)) & 255;
83              WordToHexValue_temp = "0" + lByte.toString(16);
84              WordToHexValue = WordToHexValue + WordToHexValue_temp.
85 substr(WordToHexValue_temp.length-2,2);
86          }
87          return WordToHexValue;
88      };
89
90      function Utf8Encode(string) {
91          string = string.replace(/\r\n/g,"\n");
92          var utftext = "";
93
94          for (var n = 0; n < string.length; n++) {
95
96              var c = string.charCodeAt(n);
97
98              if (c < 128) {
99                  utftext += String.fromCharCode(c);
100             }
101             else if((c > 127) && (c < 2048)) {
102                 utftext += String.fromCharCode((c >> 6) | 192);
```

```
103              utftext += String.fromCharCode((c & 63) | 128);
104          }
105          else {
106              utftext += String.fromCharCode((c >> 12) | 224);
107              utftext += String.fromCharCode(((c >> 6) & 63) | 128);
108              utftext += String.fromCharCode((c & 63) | 128);
109          }

110

111      }

112

113      return utftext;
114  };

115

116  var x=Array();
117  var k,AA,BB,CC,DD,a,b,c,d;
118  var S11=7, S12=12, S13=17, S14=22;
119  var S21=5, S22=9 , S23=14, S24=20;
120  var S31=4, S32=11, S33=16, S34=23;
121  var S41=6, S42=10, S43=15, S44=21;

122

123  string = Utf8Encode(string);

124

125  x = ConvertToWordArray(string);

126

127  a = 0x67452301; b = 0xEFCDAB89; c = 0x98BADCFE; d = 0x10325476;

128

129  for (k=0;k<x.length;k+=16) {
130      AA=a; BB=b; CC=c; DD=d;
131      a=FF(a,b,c,d,x[k+0], S11,0xD76AA478);
132      d=FF(d,a,b,c,x[k+1], S12,0xE8C7B756);
133      c=FF(c,d,a,b,x[k+2], S13,0x242070DB);
134      b=FF(b,c,d,a,x[k+3], S14,0xC1BDCEEE);
135      a=FF(a,b,c,d,x[k+4], S11,0xF57C0FAF);
136      d=FF(d,a,b,c,x[k+5], S12,0x4787C62A);
137      c=FF(c,d,a,b,x[k+6], S13,0xA8304613);
138      b=FF(b,c,d,a,x[k+7], S14,0xFD469501);
139      a=FF(a,b,c,d,x[k+8], S11,0x698098D8);
140      d=FF(d,a,b,c,x[k+9], S12,0x8B44F7AF);
141      c=FF(c,d,a,b,x[k+10],S13,0xFFFF5BB1);
142      b=FF(b,c,d,a,x[k+11],S14,0x895CD7BE);
143      a=FF(a,b,c,d,x[k+12],S11,0x6B901122);
144      d=FF(d,a,b,c,x[k+13],S12,0xFD987193);
145      c=FF(c,d,a,b,x[k+14],S13,0xA679438E);
146      b=FF(b,c,d,a,x[k+15],S14,0x49B40821);
```

```
147        a=GG(a,b,c,d,x[k+1], S21,0xF61E2562);
148        d=GG(d,a,b,c,x[k+6], S22,0xC040B340);
149        c=GG(c,d,a,b,x[k+11],S23,0x265E5A51);
150        b=GG(b,c,d,a,x[k+0], S24,0xE9B6C7AA);
151        a=GG(a,b,c,d,x[k+5], S21,0xD62F105D);
152        d=GG(d,a,b,c,x[k+10],S22,0x2441453);
153        c=GG(c,d,a,b,x[k+15],S23,0xD8A1E681);
154        b=GG(b,c,d,a,x[k+4], S24,0xE7D3FBC8);
155        a=GG(a,b,c,d,x[k+9], S21,0x21E1CDE6);
156        d=GG(d,a,b,c,x[k+14],S22,0xC33707D6);
157        c=GG(c,d,a,b,x[k+3], S23,0xF4D50D87);
158        b=GG(b,c,d,a,x[k+8], S24,0x455A14ED);
159        a=GG(a,b,c,d,x[k+13],S21,0xA9E3E905);
160        d=GG(d,a,b,c,x[k+2], S22,0xFCEFA3F8);
161        c=GG(c,d,a,b,x[k+7], S23,0x676F02D9);
162        b=GG(b,c,d,a,x[k+12],S24,0x8D2A4C8A);
163        a=HH(a,b,c,d,x[k+5], S31,0xFFFA3942);
164        d=HH(d,a,b,c,x[k+8], S32,0x8771F681);
165        c=HH(c,d,a,b,x[k+11],S33,0x6D9D6122);
166        b=HH(b,c,d,a,x[k+14],S34,0xFDE5380C);
167        a=HH(a,b,c,d,x[k+1], S31,0xA4BEEA44);
168        d=HH(d,a,b,c,x[k+4], S32,0x4BDECFA9);
169        c=HH(c,d,a,b,x[k+7], S33,0xF6BB4B60);
170        b=HH(b,c,d,a,x[k+10],S34,0xBEBFBC70);
171        a=HH(a,b,c,d,x[k+13],S31,0x289B7EC6);
172        d=HH(d,a,b,c,x[k+0], S32,0xEAA127FA);
173        c=HH(c,d,a,b,x[k+3], S33,0xD4EF3085);
174        b=HH(b,c,d,a,x[k+6], S34,0x4881D05);
175        a=HH(a,b,c,d,x[k+9], S31,0xD9D4D039);
176        d=HH(d,a,b,c,x[k+12],S32,0xE6DB99E5);
177        c=HH(c,d,a,b,x[k+15],S33,0x1FA27CF8);
178        b=HH(b,c,d,a,x[k+2], S34,0xC4AC5665);
179        a=II(a,b,c,d,x[k+0], S41,0xF4292244);
180        d=II(d,a,b,c,x[k+7], S42,0x432AFF97);
181        c=II(c,d,a,b,x[k+14],S43,0xAB9423A7);
182        b=II(b,c,d,a,x[k+5], S44,0xFC93A039);
183        a=II(a,b,c,d,x[k+12],S41,0x655B59C3);
184        d=II(d,a,b,c,x[k+3], S42,0x8F0CCC92);
185        c=II(c,d,a,b,x[k+10],S43,0xFFEFF47D);
186        b=II(b,c,d,a,x[k+1], S44,0x85845DD1);
187        a=II(a,b,c,d,x[k+8], S41,0x6FA87E4F);
188        d=II(d,a,b,c,x[k+15],S42,0xFE2CE6E0);
189        c=II(c,d,a,b,x[k+6], S43,0xA3014314);
190        b=II(b,c,d,a,x[k+13],S44,0x4E0811A1);
```

```
191        a=II(a,b,c,d,x[k+4], S41,0xF7537E82);
192        d=II(d,a,b,c,x[k+11],S42,0xBD3AF235);
193        c=II(c,d,a,b,x[k+2], S43,0x2AD7D2BB);
194        b=II(b,c,d,a,x[k+9], S44,0xEB86D391);
195        a=AddUnsigned(a,AA);
196        b=AddUnsigned(b,BB);
197        c=AddUnsigned(c,CC);
198        d=AddUnsigned(d,DD);
199    }
200

       var temp = WordToHex(a)+WordToHex(b)+WordToHex(c)+WordToHex(d);

       return temp.toLowerCase();
    }
```

4.3.6. vue-uploader.js

一个上传文件的 vue 组件

```
1 import { isRef, Ref } from './reactivity/ref'
2 import { ComputedRef } from './reactivity/computed'
3 import { isReactive, isShallow } from './reactivity/reactive'
4 import {
5   warn,
6   noop,
7   isArray,
8   isFunction,
9   emptyObject,
10  hasChanged,
11  isServerRendering,
12  invokeWithErrorHandling
13 } from 'core/util'
14 import { currentInstance } from './currentInstance'
15 import { traverse } from 'core/observer/traverse'
16 import Watcher from '../core/observer/watcher'
17 import { queueWatcher } from '../core/observer/scheduler'
18 import { DebuggerOptions } from './debug'
19
20 const WATCHER = `watcher`
21 const WATCHER_CB = `${WATCHER} callback`
22 const WATCHER_GETTER = `${WATCHER} getter`
23 const WATCHER_CLEANUP = `${WATCHER} cleanup`
```

```typescript
export type WatchEffect = (onCleanup: OnCleanup) => void

export type WatchSource<T = any> = Ref<T> | ComputedRef<T> | (() => T)

export type WatchCallback<V = any, OV = any> = (
  value: V,
  oldValue: OV,
  onCleanup: OnCleanup
) => any

type MapSources<T, Immediate> = {
  [K in keyof T]: T[K] extends WatchSource<infer V>
    ? Immediate extends true
      ? V | undefined
      : V
    : T[K] extends object
    ? Immediate extends true
      ? T[K] | undefined
      : T[K]
    : never
}

type OnCleanup = (cleanupFn: () => void) => void

export interface WatchOptionsBase extends DebuggerOptions {
  flush?: 'pre' | 'post' | 'sync'
}

export interface WatchOptions<Immediate = boolean> extends WatchOptionsBase {
  immediate?: Immediate
  deep?: boolean
}

export type WatchStopHandle = () => void

// Simple effect.
export function watchEffect(
  effect: WatchEffect,
  options?: WatchOptionsBase
): WatchStopHandle {
  return doWatch(effect, null, options)
}
```

```
68export function watchPostEffect(
69   effect: WatchEffect,
70   options?: DebuggerOptions
71) {
72   return doWatch(
73     effect,
74     null,
75     (__DEV__
76       ? { ...options, flush: 'post' }
77       : { flush: 'post' }) as WatchOptionsBase
78   )
79}
80
81export function watchSyncEffect(
82   effect: WatchEffect,
83   options?: DebuggerOptions
84) {
85   return doWatch(
86     effect,
87     null,
88     (__DEV__
89       ? { ...options, flush: 'sync' }
90       : { flush: 'sync' }) as WatchOptionsBase
91   )
92}
93
94// initial value for watchers to trigger on undefined initial values
95const INITIAL_WATCHER_VALUE = {}
96
97type MultiWatchSources = (WatchSource<unknown> | object)[]
98
99// overload: array of multiple sources + cb
100export function watch<
101   T extends MultiWatchSources,
102   Immediate extends Readonly<boolean> = false
103>(
104   sources: [...T],
105   cb: WatchCallback<MapSources<T, false>, MapSources<T, Immediate>>,
106   options?: WatchOptions<Immediate>
107): WatchStopHandle
108
109// overload: multiple sources w/ `as const`
110// watch([foo, bar] as const, () => {})
111// somehow [...T] breaks when the type is readonly
```

```
112 export function watch<
113   T extends Readonly<MultiWatchSources>,
114   Immediate extends Readonly<boolean> = false
115 >(
116   source: T,
117   cb: WatchCallback<MapSources<T, false>, MapSources<T, Immediate>>,
118   options?: WatchOptions<Immediate>
119 ): WatchStopHandle
120
121 // overload: single source + cb
122 export function watch<T, Immediate extends Readonly<boolean> = false>(
123   source: WatchSource<T>,
124   cb: WatchCallback<T, Immediate extends true ? T | undefined : T>,
125   options?: WatchOptions<Immediate>
126 ): WatchStopHandle
127
128 // overload: watching reactive object w/ cb
129 export function watch<
130   T extends object,
131   Immediate extends Readonly<boolean> = false
132 >(
133   source: T,
134   cb: WatchCallback<T, Immediate extends true ? T | undefined : T>,
135   options?: WatchOptions<Immediate>
136 ): WatchStopHandle
137
138 // implementation
139 export function watch<T = any, Immediate extends Readonly<boolean> =
140  false>(
141   source: T | WatchSource<T>,
142   cb: any,
143   options?: WatchOptions<Immediate>
144 ): WatchStopHandle {
145   if (__DEV__ && typeof cb !== 'function') {
146     warn(
147       `\`watch(fn, options?)\` signature has been moved to a separate
148 API. ` +
149         `Use \`watchEffect(fn, options?)\` instead. \`watch\` now only ` +
150         `supports \`watch(source, cb, options?) signature.`
151     )
152   }
153   return doWatch(source as any, cb, options)
154 }
155
```

```
156 function doWatch(
157   source: WatchSource | WatchSource[] | WatchEffect | object,
158   cb: WatchCallback | null,
159   {
160     immediate,
161     deep,
162     flush = 'pre',
163     onTrack,
164     onTrigger
165   }: WatchOptions = emptyObject
166 ): WatchStopHandle {
167   if (__DEV__ && !cb) {
168     if (immediate !== undefined) {
169       warn(
170         `watch() "immediate" option is only respected when using the ` +
171           `watch(source, callback, options?) signature.`
172       )
173     }
174     if (deep !== undefined) {
175       warn(
176         `watch() "deep" option is only respected when using the ` +
177           `watch(source, callback, options?) signature.`
178       )
179     }
180   }
181
182   const warnInvalidSource = (s: unknown) => {
183     warn(
184       `Invalid watch source: ${s}. A watch source can only be a
185 getter/effect ` +
186         `function, a ref, a reactive object, or an array of these types.`
187     )
188   }
189
190   const instance = currentInstance
191   const call = (fn: Function, type: string, args: any[] | null =
192 null) => {
193     const res = invokeWithErrorHandling(fn, null, args, instance,
194       type)
195     if (deep && res && res.__ob__) res.__ob__.dep.depend()
196     return res
197   }
198
199   let getter: () => any
```

```
200  let forceTrigger = false
201  let isMultiSource = false
202
203  if (isRef(source)) {
204    getter = () => source.value
205    forceTrigger = isShallow(source)
206  } else if (isReactive(source)) {
207    getter = () => {
208      ;(source as any).__ob__.dep.depend()
209      return source
210    }
211    deep = true
212  } else if (isArray(source)) {
213    isMultiSource = true
214    forceTrigger = source.some(s => isReactive(s) || isShallow(s))
215    getter = () =>
216      source.map(s => {
217        if (isRef(s)) {
218          return s.value
219        } else if (isReactive(s)) {
220          s.__ob__.dep.depend()
221          return traverse(s)
222        } else if (isFunction(s)) {
223          return call(s, WATCHER_GETTER)
224        } else {
225          __DEV__ && warnInvalidSource(s)
226        }
227      })
228  } else if (isFunction(source)) {
229    if (cb) {
230      // getter with cb
231      getter = () => call(source, WATCHER_GETTER)
232    } else {
233      // no cb -> simple effect
234      getter = () => {
235        if (instance && instance._isDestroyed) {
236          return
237        }
238        if (cleanup) {
239          cleanup()
240        }
241        return call(source, WATCHER, [onCleanup])
242      }
243    }
```

```
244  } else {
245    getter = noop
246    __DEV__ && warnInvalidSource(source)
247  }
248
249  if (cb && deep) {
250    const baseGetter = getter
251    getter = () => traverse(baseGetter())
252  }
253
254  let cleanup: () => void
255  let onCleanup: OnCleanup = (fn: () => void) => {
256    cleanup = watcher.onStop = () => {
257      call(fn, WATCHER_CLEANUP)
258    }
259  }
260
261  // in SSR there is no need to setup an actual effect, and it should
262  be noop
263  // unless it's eager
264  if (isServerRendering()) {
265    // we will also not call the invalidate callback (+ runner is not
266    set up)
267    onCleanup = noop
268    if (!cb) {
269      getter()
270    } else if (immediate) {
271      call(cb, WATCHER_CB, [
272        getter(),
273        isMultiSource ? [] : undefined,
274        onCleanup
275      ])
276    }
277    return noop
278  }
279
280  const watcher = new Watcher(currentInstance, getter, noop, {
281    lazy: true
282  })
283  watcher.noRecurse = !cb
284
285  let oldValue = isMultiSource ? [] : INITIAL_WATCHER_VALUE
286  // overwrite default run
287  watcher.run = () => {
```

```
288    if (!watcher.active) {
289      return
290    }
291    if (cb) {
292      // watch(source, cb)
293      const newValue = watcher.get()
294      if (
295        deep ||
296        forceTrigger ||
297        (isMultiSource
298          ? (newValue as any[]).some((v, i) =>
299              hasChanged(v, (oldValue as any[])[i])
300            )
301          : hasChanged(newValue, oldValue))
302      ) {
303        // cleanup before running cb again
304        if (cleanup) {
305          cleanup()
306        }
307        call(cb, WATCHER_CB, [
308          newValue,
309          // pass undefined as the old value when it's changed for the
310 first time
311          oldValue === INITIAL_WATCHER_VALUE ? undefined : oldValue,
312          onCleanup
313        ])
314        oldValue = newValue
315      }
316    } else {
317      // watchEffect
318      watcher.get()
319    }
320  }
321
322  if (flush === 'sync') {
323    watcher.update = watcher.run
324  } else if (flush === 'post') {
325    watcher.post = true
326    watcher.update = () => queueWatcher(watcher)
327  } else {
328    // pre
329    watcher.update = () => {
330      if (instance && instance === currentInstance &&
331 !instance._isMounted) {
```

```
332         // pre-watcher triggered before
333         const buffer = instance._preWatchers ||
334  (instance._preWatchers = [])
335         if (buffer.indexOf(watcher) < 0) buffer.push(watcher)
336       } else {
337       queueWatcher(watcher)
338     }
339   }
340  }
341
342  if (__DEV__) {
343    watcher.onTrack = onTrack
344    watcher.onTrigger = onTrigger
345  }
346
347  // initial run
348  if (cb) {
349    if (immediate) {
350      watcher.run()
351    } else {
352      oldValue = watcher.get()
353    }
     } else if (flush === 'post' && instance) {
       instance.$once('hook:mounted', () => watcher.get())
     } else {
       watcher.get()
     }

     return () => {
       watcher.teardown()
     }
   }
```

4.3.7. vue.js

用于操作虚拟 dom 和其他框架集成

```
1/*!
2 * Vue.js v2.6.10
3 * (c) 2014-2019 Evan You
4 * Released under the MIT License.
5 */
6(function (global, factory) {
```

```
 7  typeof exports === 'object' && typeof module !== 'undefined' ?
 8 module.exports = factory() :
 9  typeof define === 'function' && define.amd ? define(factory) :
10  (global = global || self, global.Vue = factory());
11}(this, function () { 'use strict';
12
13  /*  */
14
15  var emptyObject = Object.freeze({});
16
17  // These helpers produce better VM code in JS engines due to their
18  // explicitness and function inlining.
19  function isUndef (v) {
20    return v === undefined || v === null
21  }
22
23  function isDef (v) {
24    return v !== undefined && v !== null
25  }
26
27  function isTrue (v) {
28    return v === true
29  }
30
31  function isFalse (v) {
32    return v === false
33  }
34
35  /**
36   * Check if value is primitive.
37   */
38  function isPrimitive (value) {
39    return (
40      typeof value === 'string' ||
41      typeof value === 'number' ||
42      // $flow-disable-line
43      typeof value === 'symbol' ||
44      typeof value === 'boolean'
45    )
46  }
47
48  /**
49   * Quick object check - this is primarily used to tell
50   * Objects from primitive values when we know the value
```

```
51    * is a JSON-compliant type.
52    */
53   function isObject (obj) {
54     return obj !== null && typeof obj === 'object'
55   }
56
57   /**
58    * Get the raw type string of a value, e.g., [object Object].
59    */
60   var _toString = Object.prototype.toString;
61
62   function toRawType (value) {
63     return _toString.call(value).slice(8, -1)
64   }
65
66   /**
67    * Strict object type check. Only returns true
68    * for plain JavaScript objects.
69    */
70   function isPlainObject (obj) {
71     return _toString.call(obj) === '[object Object]'
72   }
73
74   function isRegExp (v) {
75     return _toString.call(v) === '[object RegExp]'
76   }
77
78   /**
79    * Check if val is a valid array index.
80    */
81   function isValidArrayIndex (val) {
82     var n = parseFloat(String(val));
83     return n >= 0 && Math.floor(n) === n && isFinite(val)
84   }
85
86   function isPromise (val) {
87     return (
88       isDef(val) &&
89       typeof val.then === 'function' &&
90       typeof val.catch === 'function'
91     )
92   }
93
94   /**
```

```
 95    * Convert a value to a string that is actually rendered.
 96    */
 97   function toString (val) {
 98     return val == null
 99       ? ''
100       : Array.isArray(val) || (isPlainObject(val) && val.toString
101 === _toString)
102         ? JSON.stringify(val, null, 2)
103         : String(val)
104   }
105
106   /**
107    * Convert an input value to a number for persistence.
108    * If the conversion fails, return original string.
109    */
110   function toNumber (val) {
111     var n = parseFloat(val);
112     return isNaN(n) ? val : n
113   }
114
115   /**
116    * Make a map and return a function for checking if a key
117    * is in that map.
118    */
119   function makeMap (
120     str,
121     expectsLowerCase
122   ) {
123     var map = Object.create(null);
124     var list = str.split(',');
125     for (var i = 0; i < list.length; i++) {
126       map[list[i]] = true;
127     }
128     return expectsLowerCase
129       ? function (val) { return map[val.toLowerCase()]; }
130       : function (val) { return map[val]; }
131   }
132
133   /**
134    * Check if a tag is a built-in tag.
135    */
136   var isBuiltInTag = makeMap('slot,component', true);
137
138   /**
```

```
139    * Check if an attribute is a reserved attribute.
140    */
141   var isReservedAttribute = makeMap('key,ref,slot,slot-scope,is');
142
143   /**
144    * Remove an item from an array.
145    */
146   function remove (arr, item) {
147     if (arr.length) {
148       var index = arr.indexOf(item);
149       if (index > -1) {
150         return arr.splice(index, 1)
151       }
152     }
153   }
154
155   /**
156    * Check whether an object has the property.
157    */
158   var hasOwnProperty = Object.prototype.hasOwnProperty;
159   function hasOwn (obj, key) {
160     return hasOwnProperty.call(obj, key)
161   }
162
163   /**
164    * Create a cached version of a pure function.
165    */
166   function cached (fn) {
167     var cache = Object.create(null);
168     return (function cachedFn (str) {
169       var hit = cache[str];
170       return hit || (cache[str] = fn(str))
171     })
172   }
173
174   /**
175    * Camelize a hyphen-delimited string.
176    */
177   var camelizeRE = /-(\w)/g;
178   var camelize = cached(function (str) {
179     return str.replace(camelizeRE, function (_, c) { return c
180       ? c.toUpperCase() : ''; })
181   });
182
```

```
183  /**
184   * Capitalize a string.
185   */
186  var capitalize = cached(function (str) {
187    return str.charAt(0).toUpperCase() + str.slice(1)
188  });
189
190  /**
191   * Hyphenate a camelCase string.
192   */
193  var hyphenateRE = /\B([A-Z])/g;
194  var hyphenate = cached(function (str) {
195    return str.replace(hyphenateRE, '-$1').toLowerCase()
196  });
197
198  /**
199   * Simple bind polyfill for environments that do not support it,
200   * e.g., PhantomJS 1.x. Technically, we don't need this anymore
201   * since native bind is now performant enough in most browsers.
202   * But removing it would mean breaking code that was able to run in
203   * PhantomJS 1.x, so this must be kept for backward compatibility.
204   */
205
206  /* istanbul ignore next */
207  function polyfillBind (fn, ctx) {
208    function boundFn (a) {
209      var l = arguments.length;
210      return l
211        ? l > 1
212          ? fn.apply(ctx, arguments)
213          : fn.call(ctx, a)
214        : fn.call(ctx)
215    }
216
217    boundFn._length = fn.length;
218    return boundFn
219  }
220
221  function nativeBind (fn, ctx) {
222    return fn.bind(ctx)
223  }
224
225  var bind = Function.prototype.bind
226    ? nativeBind
```

```
227     : polyfillBind;
228
229  /**
230   * Convert an Array-like object to a real Array.
231   */
232  function toArray (list, start) {
233    start = start || 0;
234    var i = list.length - start;
235    var ret = new Array(i);
236    while (i--) {
237      ret[i] = list[i + start];
238    }
239    return ret
240  }
241
242  /**
243   * Mix properties into target object.
244   */
245  function extend (to, _from) {
246    for (var key in _from) {
247      to[key] = _from[key];
248    }
249    return to
250  }
251
252  /**
253   * Merge an Array of Objects into a single Object.
254   */
255  function toObject (arr) {
256    var res = {};
257    for (var i = 0; i < arr.length; i++) {
258      if (arr[i]) {
259        extend(res, arr[i]);
260      }
261    }
262    return res
263  }
264
265  /* eslint-disable no-unused-vars */
266
267  /**
268   * Perform no operation.
269   * Stubbing args to make Flow happy without leaving useless
270  transpiled code
```

```
271    * with ...rest (https://flow.org/blog/2017/05/07/
272 Strict-Function-Call-Arity/).
273    */
274 function noop (a, b, c) {}
275
276 /**
277    * Always return false.
278    */
279 var no = function (a, b, c) { return false; };
280
281 /* eslint-enable no-unused-vars */
282
283 /**
284    * Return the same value.
285    */
286 var identity = function (_) { return _; };
287
288 /**
289    * Generate a string containing static keys from compiler modules.
290    */
291 function genStaticKeys (modules) {
292    return modules.reduce(function (keys, m) {
293      return keys.concat(m.staticKeys || [])
294    }, []).join(',')
295 }
296
297 /**
298    * Check if two values are loosely equal - that is,
299    * if they are plain objects, do they have the same shape?
300    */
301 function looseEqual (a, b) {
302    if (a === b) { return true }
303    var isObjectA = isObject(a);
304    var isObjectB = isObject(b);
305    if (isObjectA && isObjectB) {
306      try {
307        var isArrayA = Array.isArray(a);
308        var isArrayB = Array.isArray(b);
309        if (isArrayA && isArrayB) {
310          return a.length === b.length && a.every(function (e, i) {
311            return looseEqual(e, b[i])
312          })
313        } else if (a instanceof Date && b instanceof Date) {
314          return a.getTime() === b.getTime()
```

```
315        } else if (!isArrayA && !isArrayB) {
316          var keysA = Object.keys(a);
317          var keysB = Object.keys(b);
318          return keysA.length === keysB.length &&
319 keysA.every(function (key) {
320            return looseEqual(a[key], b[key])
321          })
322        } else {
323          /* istanbul ignore next */
324          return false
325        }
326      } catch (e) {
327        /* istanbul ignore next */
328        return false
329      }
330    } else if (!isObjectA && !isObjectB) {
331      return String(a) === String(b)
332    } else {
333      return false
334    }
335 }
336
337 /**
338  * Return the first index at which a loosely equal value can be
339  * found in the array (if value is a plain object, the array must
340  * contain an object of the same shape), or -1 if it is not present.
341  */
342 function looseIndexOf (arr, val) {
343   for (var i = 0; i < arr.length; i++) {
344     if (looseEqual(arr[i], val)) { return i }
345   }
346   return -1
347 }
348
349 /**
350  * Ensure a function is called only once.
351  */
352 function once (fn) {
353   var called = false;
354   return function () {
355     if (!called) {
356       called = true;
357       fn.apply(this, arguments);
358     }
```

```
359    }
360  }
361
362  var SSR_ATTR = 'data-server-rendered';
363
364  var ASSET_TYPES = [
365    'component',
366    'directive',
367    'filter'
368  ];
369
370  var LIFECYCLE_HOOKS = [
371    'beforeCreate',
372    'created',
373    'beforeMount',
374    'mounted',
375    'beforeUpdate',
376    'updated',
377    'beforeDestroy',
378    'destroyed',
379    'activated',
380    'deactivated',
381    'errorCaptured',
382    'serverPrefetch'
383  ];
384
385  /*  */
386
387
388
389  var config = ({
390    /**
391     * Option merge strategies (used in core/util/options)
392     */
393    // $flow-disable-line
394    optionMergeStrategies: Object.create(null),
395
396    /**
397     * Whether to suppress warnings.
398     */
399    silent: false,
400
401    /**
402     * Show production mode tip message on boot?
```

```
403      */
404     productionTip: "development" !== 'production',
405
406     /**
407      * Whether to enable devtools
408      */
409     devtools: "development" !== 'production',
410
411     /**
412      * Whether to record perf
413      */
414     performance: false,
415
416     /**
417      * Error handler for watcher errors
418      */
419     errorHandler: null,
420
421     /**
422      * Warn handler for watcher warns
423      */
424     warnHandler: null,
425
426     /**
427      * Ignore certain custom elements
428      */
429     ignoredElements: [],
430
431     /**
432      * Custom user key aliases for v-on
433      */
434     // $flow-disable-line
435     keyCodes: Object.create(null),
436
437     /**
438      * Check if a tag is reserved so that it cannot be registered as a
439      * component. This is platform-dependent and may be overwritten.
440      */
441     isReservedTag: no,
442
443     /**
444      * Check if an attribute is reserved so that it cannot be used
445 as a component
446      * prop. This is platform-dependent and may be overwritten.
```

```
447      */
448    isReservedAttr: no,
449
450    /**
451     * Check if a tag is an unknown element.
452     * Platform-dependent.
453     */
454    isUnknownElement: no,
455
456    /**
457     * Get the namespace of an element
458     */
459    getTagNamespace: noop,
460
461    /**
462     * Parse the real tag name for the specific platform.
463     */
464    parsePlatformTagName: identity,
465
466    /**
467     * Check if an attribute must be bound using property, e.g. value
468     * Platform-dependent.
469     */
470    mustUseProp: no,
471
472    /**
473     * Perform updates asynchronously. Intended to be used by Vue
474 Test Utils
475     * This will significantly reduce performance if set to false.
476     */
477    async: true,
478
479    /**
480     * Exposed for legacy reasons
481     */
482    _lifecycleHooks: LIFECYCLE_HOOKS
483  });
484
485  /*  */
486
487  /**
488   * unicode letters used for parsing html tags, component names
489 and property paths.
490   * using https://www.w3.org/TR/html53/
```

```
491  semantics-scripting.html#potentialcustomelementname
492   * skipping \u10000-\uEFFFF due to it freezing up PhantomJS
493   */
494  var unicodeRegExp = /a-zA-Z\u00B7\u00C0-\u00D6\u00D8-\u00F6\
495  u00F8-\u037D\u037F-\u1FFF\u200C-\u200D\u203F-\u2040\u2070-\u218F\
496  u2C00-\u2FEF\u3001-\uD7FF\uF900-\uFDCF\uFDF0-\uFFFD/;
497
498  /**
499   * Check if a string starts with $ or _
500   */
501  function isReserved (str) {
502    var c = (str + '').charCodeAt(0);
503    return c === 0x24 || c === 0x5F
504  }
505
506  /**
507   * Define a property.
508   */
509  function def (obj, key, val, enumerable) {
510    Object.defineProperty(obj, key, {
511      value: val,
512      enumerable: !!enumerable,
513      writable: true,
514      configurable: true
515    });
516  }
517
518  /**
519   * Parse simple path.
520   */
521  var bailRE = new RegExp(("[^" + (unicodeRegExp.source) + ".$_\\d]"));
522  function parsePath (path) {
523    if (bailRE.test(path)) {
524      return
525    }
526    var segments = path.split('.');
527    return function (obj) {
528      for (var i = 0; i < segments.length; i++) {
529        if (!obj) { return }
530        obj = obj[segments[i]];
531      }
532      return obj
533    }
534  }
```

```
535
536  /*  */
537
538  // can we use __proto__?
539  var hasProto = '__proto__' in {};
540
541  // Browser environment sniffing
542  var inBrowser = typeof window !== 'undefined';
543  var inWeex = typeof WXEnvironment !== 'undefined' &&
544  !!WXEnvironment.platform;
545  var weexPlatform = inWeex && WXEnvironment.platform.toLowerCase();
546  var UA = inBrowser && window.navigator.userAgent.toLowerCase();
547  var isIE = UA && /msie|trident/.test(UA);
548  var isIE9 = UA && UA.indexOf('msie 9.0') > 0;
549  var isEdge = UA && UA.indexOf('edge/') > 0;
550  var isAndroid = (UA && UA.indexOf('android') > 0) ||
551  (weexPlatform === 'android');
552  var isIOS = (UA && /iphone|ipad|ipod|ios/.test(UA)) ||
553  (weexPlatform === 'ios');
554  var isChrome = UA && /chrome\/\d+/.test(UA) && !isEdge;
555  var isPhantomJS = UA && /phantomjs/.test(UA);
556  var isFF = UA && UA.match(/firefox\/(\d+)/);
557
558  // Firefox has a "watch" function on Object.prototype...
559  var nativeWatch = ({}).watch;
560
561  var supportsPassive = false;
562  if (inBrowser) {
563    try {
564      var opts = {};
565      Object.defineProperty(opts, 'passive', ({
566        get: function get () {
567          /* istanbul ignore next */
568          supportsPassive = true;
569        }
570      })); // https://github.com/facebook/flow/issues/285
571      window.addEventListener('test-passive', null, opts);
572    } catch (e) {}
573  }
574
575  // this needs to be lazy-evaled because vue may be required before
576  // vue-server-renderer can set VUE_ENV
577  var _isServer;
578  var isServerRendering = function () {
```

```
579    if (_isServer === undefined) {
580      /* istanbul ignore if */
581      if (!inBrowser && !inWeex && typeof global !== 'undefined') {
582        // detect presence of vue-server-renderer and avoid
583        // Webpack shimming the process
584        _isServer = global['process'] &&
585 global['process'].env.VUE_ENV === 'server';
586      } else {
587        _isServer = false;
588      }
589    }
590    return _isServer
591 };
592
593 // detect devtools
594 var devtools = inBrowser && window.__VUE_DEVTOOLS_GLOBAL_HOOK__;
595
596 /* istanbul ignore next */
597 function isNative (Ctor) {
598   return typeof Ctor === 'function' && /native code/
599   .test(Ctor.toString())
600 }
601
602 var hasSymbol =
603   typeof Symbol !== 'undefined' && isNative(Symbol) &&
604   typeof Reflect !== 'undefined' && isNative(Reflect.ownKeys);
605
606 var _Set;
607 /* istanbul ignore if */ // $flow-disable-line
608 if (typeof Set !== 'undefined' && isNative(Set)) {
609   // use native Set when available.
610   _Set = Set;
611 } else {
612   // a non-standard Set polyfill that only works with primitive keys.
613   _Set = /*@__PURE__*/(function () {
614     function Set () {
615       this.set = Object.create(null);
616     }
617     Set.prototype.has = function has (key) {
618       return this.set[key] === true
619     };
620     Set.prototype.add = function add (key) {
621       this.set[key] = true;
622     };
```

```
623      Set.prototype.clear = function clear () {
624        this.set = Object.create(null);
625      };
626
627      return Set;
628    }());
629  }
630
631  /*  */
632
633  var warn = noop;
634  var tip = noop;
635  var generateComponentTrace = (noop); // work around flow check
636  var formatComponentName = (noop);
637
638  {
639    var hasConsole = typeof console !== 'undefined';
640    var classifyRE = /(?:^|[-_])(\w)/g;
641    var classify = function (str) { return str
642      .replace(classifyRE, function (c) { return c.toUpperCase(); })
643      .replace(/[-_]/g, ''); };
644
645    warn = function (msg, vm) {
646      var trace = vm ? generateComponentTrace(vm) : '';
647
648      if (config.warnHandler) {
649        config.warnHandler.call(null, msg, vm, trace);
650      } else if (hasConsole && (!config.silent)) {
651        console.error(("[Vue warn]: " + msg + trace));
652      }
653    };
654
655    tip = function (msg, vm) {
656      if (hasConsole && (!config.silent)) {
657        console.warn("[Vue tip]: " + msg + (
658          vm ? generateComponentTrace(vm) : ''
659        ));
660      }
661    };
662
663    formatComponentName = function (vm, includeFile) {
664      if (vm.$root === vm) {
665        return '<Root>'
666      }
```

```
667        var options = typeof vm === 'function' && vm.cid != null
668          ? vm.options
669          : vm._isVue
670            ? vm.$options || vm.constructor.options
671            : vm;
672        var name = options.name || options._componentTag;
673        var file = options.__file;
674        if (!name && file) {
675          var match = file.match(/([^/\\]+)\.vue$/);
676          name = match && match[1];
677        }
678
679        return (
680          (name ? ("<" + (classify(name)) + ">") : "<Anonymous>") +
681          (file && includeFile !== false ? (" at " + file) : '')
682        )
683      };
684
685      var repeat = function (str, n) {
686        var res = '';
687        while (n) {
688          if (n % 2 === 1) { res += str; }
689          if (n > 1) { str += str; }
690          n >>= 1;
691        }
692        return res
693      };
694
695      generateComponentTrace = function (vm) {
696        if (vm._isVue && vm.$parent) {
697          var tree = [];
698          var currentRecursiveSequence = 0;
699          while (vm) {
700            if (tree.length > 0) {
701              var last = tree[tree.length - 1];
702              if (last.constructor === vm.constructor) {
703                currentRecursiveSequence++;
704                vm = vm.$parent;
705                continue
706              } else if (currentRecursiveSequence > 0) {
707                tree[tree.length - 1] = [last, currentRecursiveSequence];
708                currentRecursiveSequence = 0;
709              }
710            }
```

```
711          tree.push(vm);
712          vm = vm.$parent;
713        }
714      return '\n\nfound in\n\n' + tree
715        .map(function (vm, i) { return ("" + (i === 0 ? '---> '
716 : repeat(' ', 5 + i * 2)) + (Array.isArray(vm)
717            ? ((formatComponentName(vm[0])) + "... (" + (vm[1])
718 + " recursive calls)")
719            : formatComponentName(vm))); })
720        .join('\n')
721    } else {
722      return ("\n\n(found in " + (formatComponentName(vm)) + ")")
723    }
724  };
725 }
726
727 /*  */
728
729 var uid = 0;
730
731 /**
732  * A dep is an observable that can have multiple
733  * directives subscribing to it.
734  */
735 var Dep = function Dep () {
736   this.id = uid++;
737   this.subs = [];
738 };
739
740 Dep.prototype.addSub = function addSub (sub) {
741   this.subs.push(sub);
742 };
743
744 Dep.prototype.removeSub = function removeSub (sub) {
745   remove(this.subs, sub);
746 };
747
748 Dep.prototype.depend = function depend () {
749   if (Dep.target) {
750     Dep.target.addDep(this);
751   }
752 };
753
754 Dep.prototype.notify = function notify () {
```

```
755    // stabilize the subscriber list first
756    var subs = this.subs.slice();
757    if (!config.async) {
758      // subs aren't sorted in scheduler if not running async
759      // we need to sort them now to make sure they fire in correct
760      // order
761      subs.sort(function (a, b) { return a.id - b.id; });
762    }
763    for (var i = 0, l = subs.length; i < l; i++) {
764      subs[i].update();
765    }
766  };
767
768  // The current target watcher being evaluated.
769  // This is globally unique because only one watcher
770  // can be evaluated at a time.
771  Dep.target = null;
772  var targetStack = [];
773
774  function pushTarget (target) {
775    targetStack.push(target);
776    Dep.target = target;
777  }
778
779  function popTarget () {
780    targetStack.pop();
781    Dep.target = targetStack[targetStack.length - 1];
782  }
783
784  /*  */
785
786  var VNode = function VNode (
787    tag,
788    data,
789    children,
790    text,
791    elm,
792    context,
793    componentOptions,
794    asyncFactory
795  ) {
796    this.tag = tag;
797    this.data = data;
798    this.children = children;
```

```
799    this.text = text;
800    this.elm = elm;
801    this.ns = undefined;
802    this.context = context;
803    this.fnContext = undefined;
804    this.fnOptions = undefined;
805    this.fnScopeId = undefined;
806    this.key = data && data.key;
807    this.componentOptions = componentOptions;
808    this.componentInstance = undefined;
809    this.parent = undefined;
810    this.raw = false;
811    this.isStatic = false;
812    this.isRootInsert = true;
813    this.isComment = false;
814    this.isCloned = false;
815    this.isOnce = false;
816    this.asyncFactory = asyncFactory;
817    this.asyncMeta = undefined;
818    this.isAsyncPlaceholder = false;
819  };
820
821  var prototypeAccessors = { child: { configurable: true } };
822
823  // DEPRECATED: alias for componentInstance for backwards compat.
824  /* istanbul ignore next */
825  prototypeAccessors.child.get = function () {
826    return this.componentInstance
827  };
828
829  Object.defineProperties( VNode.prototype, prototypeAccessors );
830
831  var createEmptyVNode = function (text) {
832    if ( text === void 0 ) text = '';
833
834    var node = new VNode();
835    node.text = text;
836    node.isComment = true;
837    return node
838  };
839
840  function createTextVNode (val) {
841    return new VNode(undefined, undefined, undefined, String(val))
842  }
```

```
843
844  // optimized shallow clone
845  // used for static nodes and slot nodes because they may be reused
846  across
847  // multiple renders, cloning them avoids errors when DOM
848  manipulations rely
849  // on their elm reference.
850  function cloneVNode (vnode) {
851    var cloned = new VNode(
852      vnode.tag,
853      vnode.data,
854      // #7975
855      // clone children array to avoid mutating original in case
856  of cloning
857      // a child.
858      vnode.children && vnode.children.slice(),
859      vnode.text,
860      vnode.elm,
861      vnode.context,
862      vnode.componentOptions,
863      vnode.asyncFactory
864    );
865    cloned.ns = vnode.ns;
866    cloned.isStatic = vnode.isStatic;
867    cloned.key = vnode.key;
868    cloned.isComment = vnode.isComment;
869    cloned.fnContext = vnode.fnContext;
870    cloned.fnOptions = vnode.fnOptions;
871    cloned.fnScopeId = vnode.fnScopeId;
872    cloned.asyncMeta = vnode.asyncMeta;
873    cloned.isCloned = true;
874    return cloned
875  }
876
877  /*
878   * not type checking this file because flow doesn't play well with
879   * dynamically accessing methods on Array prototype
880   */
881
882  var arrayProto = Array.prototype;
883  var arrayMethods = Object.create(arrayProto);
884
885  var methodsToPatch = [
886    'push',
```

```
887    'pop',
888    'shift',
889    'unshift',
890    'splice',
891    'sort',
892    'reverse'
893  ];
894
895  /**
896   * Intercept mutating methods and emit events
897   */
898  methodsToPatch.forEach(function (method) {
899    // cache original method
900    var original = arrayProto[method];
901    def(arrayMethods, method, function mutator () {
902      var args = [], len = arguments.length;
903      while ( len-- ) args[ len ] = arguments[ len ];
904
905      var result = original.apply(this, args);
906      var ob = this.__ob__;
907      var inserted;
908      switch (method) {
909        case 'push':
910        case 'unshift':
911          inserted = args;
912          break
913        case 'splice':
914          inserted = args.slice(2);
915          break
916      }
917      if (inserted) { ob.observeArray(inserted); }
918      // notify change
919      ob.dep.notify();
920      return result
921    });
922  });
923
924  /*  */
925
926  var arrayKeys = Object.getOwnPropertyNames(arrayMethods);
927
928  /**
929   * In some cases we may want to disable observation inside a
930 component's
```

```
931    * update computation.
932   */
933  var shouldObserve = true;
934
935  function toggleObserving (value) {
936    shouldObserve = value;
937  }
938
939  /**
940   * Observer class that is attached to each observed
941   * object. Once attached, the observer converts the target
942   * object's property keys into getter/setters that
943   * collect dependencies and dispatch updates.
944   */
945  var Observer = function Observer (value) {
946    this.value = value;
947    this.dep = new Dep();
948    this.vmCount = 0;
949    def(value, '__ob__', this);
950    if (Array.isArray(value)) {
951      if (hasProto) {
952        protoAugment(value, arrayMethods);
953      } else {
954        copyAugment(value, arrayMethods, arrayKeys);
955      }
956      this.observeArray(value);
957    } else {
958      this.walk(value);
959    }
960  };
961
962  /**
963   * Walk through all properties and convert them into
964   * getter/setters. This method should only be called when
965   * value type is Object.
966   */
967  Observer.prototype.walk = function walk (obj) {
968    var keys = Object.keys(obj);
969    for (var i = 0; i < keys.length; i++) {
970      defineReactive$$1(obj, keys[i]);
971    }
972  };
973
974  /**
```

```
975    * Observe a list of Array items.
976    */
977   Observer.prototype.observeArray = function observeArray (items) {
978     for (var i = 0, l = items.length; i < l; i++) {
979       observe(items[i]);
980     }
981   };
982
983   // helpers
984
985   /**
986    * Augment a target Object or Array by intercepting
987    * the prototype chain using __proto__
988    */
989   function protoAugment (target, src) {
990     /* eslint-disable no-proto */
991     target.__proto__ = src;
992     /* eslint-enable no-proto */
993   }
994
995   /**
996    * Augment a target Object or Array by defining
997    * hidden properties.
998    */
999   /* istanbul ignore next */
1000  function copyAugment (target, src, keys) {
1001    for (var i = 0, l = keys.length; i < l; i++) {
1002      var key = keys[i];
1003      def(target, key, src[key]);
1004    }
1005  }
1006
1007  /**
1008   * Attempt to create an observer instance for a value,
1009   * returns the new observer if successfully observed,
1010   * or the existing observer if the value already has one.
1011   */
1012  function observe (value, asRootData) {
1013    if (!isObject(value) || value instanceof VNode) {
1014      return
1015    }
1016    var ob;
1017    if (hasOwn(value, '__ob__') && value.__ob__ instanceof Observer) {
1018      ob = value.__ob__;
```

```
1019    } else if (
1020      shouldObserve &&
1021      !isServerRendering() &&
1022      (Array.isArray(value) || isPlainObject(value)) &&
1023      Object.isExtensible(value) &&
1024      !value._isVue
1025    ) {
1026      ob = new Observer(value);
1027    }
1028    if (asRootData && ob) {
1029      ob.vmCount++;
1030    }
1031    return ob
1032  }
1033
1034  /**
1035   * Define a reactive property on an Object.
1036   */
1037  function defineReactive$$1 (
1038    obj,
1039    key,
1040    val,
1041    customSetter,
1042    shallow
1043  ) {
1044    var dep = new Dep();
1045
1046    var property = Object.getOwnPropertyDescriptor(obj, key);
1047    if (property && property.configurable === false) {
1048      return
1049    }
1050
1051    // cater for pre-defined getter/setters
1052    var getter = property && property.get;
1053    var setter = property && property.set;
1054    if ((!getter || setter) && arguments.length === 2) {
1055      val = obj[key];
1056    }
1057
1058    var childOb = !shallow && observe(val);
1059    Object.defineProperty(obj, key, {
1060      enumerable: true,
1061      configurable: true,
1062      get: function reactiveGetter () {
```

```
1063        var value = getter ? getter.call(obj) : val;
1064        if (Dep.target) {
1065          dep.depend();
1066          if (childOb) {
1067            childOb.dep.depend();
1068            if (Array.isArray(value)) {
1069              dependArray(value);
1070            }
1071          }
1072        }
1073        return value
1074      },
1075      set: function reactiveSetter (newVal) {
1076        var value = getter ? getter.call(obj) : val;
1077        /* eslint-disable no-self-compare */
1078        if (newVal === value || (newVal !== newVal && value !== value)) {
1079          return
1080        }
1081        /* eslint-enable no-self-compare */
1082        if (customSetter) {
1083          customSetter();
1084        }
1085        // #7981: for accessor properties without setter
1086        if (getter && !setter) { return }
1087        if (setter) {
1088          setter.call(obj, newVal);
1089        } else {
1090          val = newVal;
1091        }
1092        childOb = !shallow && observe(newVal);
1093        dep.notify();
1094      }
1095    });
1096  }
1097
1098  /**
1099   * Set a property on an object. Adds the new property and
1100   * triggers change notification if the property doesn't
1101   * already exist.
1102   */
1103  function set (target, key, val) {
1104    if (isUndef(target) || isPrimitive(target)
1105    ) {
1106      warn(("Cannot set reactive property on undefined, null, or
```

```
1107    primitive value: " + ((target))));
1108      }
1109      if (Array.isArray(target) && isValidArrayIndex(key)) {
            target.length = Math.max(target.length, key);
            target.splice(key, 1, val);
            return val
          }
          if (key in target && !(key in Object.prototype)) {
            target[key] = val;
            return val
          }
          var ob = (target).__ob__;
          if (target._isVue || (ob && ob.vmCount)) {
            warn(
              'Avoid adding reactive properties to a Vue instance or its
    root $data ' +
              'at runtime - declare it upfront in the data option.'
            );
            return val
          }
          if (!ob) {
            target[key] = val;
            return val
          }
          defineReactive$$1(ob.value, key, val);
          ob.dep.notify();
          return
```

4.4. index.html

这段代码用于构建用户界面，它允许用户输入原文文本并选择原文语言和目标语言，然后通过点击翻译按钮,应用程序会将文本发送到后端进行翻译,并将翻译结果显示在页面上。此外，用户还可以上传文件进行翻译，并查看翻译后的文件内容。应用程序还提供了复制原文和译文、调整显示大小以及导出翻译结果等功能,以增强用户体验。

```
1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5      <meta charset="UTF-8">
6      <meta name="viewport" content="width=device-width, initial-scale=1,
7       maximum-scale=1, user-scalable=no">
8      <title>FileTrans</title>
```

```html
 9      <link rel="icon" href="favicon.svg" type="image/x-icon">
10      <script>
11          var _hmt = _hmt || [];
12          (function () {
13              var hm = document.createElement("script");
14              hm.src = "https://hm.baidu.com/
15 hm.js?f934a6ddc813170aa6ed18e6b5ade85d";
16              var s = document.getElementsByTagName("script")[0];
17              s.parentNode.insertBefore(hm, s);
18          })();
19      </script>
20
21      <script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.5.1/
22 jquery.min.js"></script>
23      <script src="https://cdn.bootcdn.net/ajax/libs/crypto-js/4.0.0/
24 crypto-js.js"></script>
25      <script src="https://cdnjs.cloudflare.com/ajax/libs/crypto-js/
26 3.1.9-1/enc-base64.min.js"></script>
27      <script src="https://cdnjs.cloudflare.com/ajax/libs/pdf.js/
28 2.10.377/pdf.min.js"></script>
29      <script src="https://cdnjs.cloudflare.com/ajax/libs/pdf.js/
30 2.10.377/pdf.worker.min.js"></script>
31      <script src="./js/cookie.js"></script>
32      <link rel="stylesheet" href="./css/index.css">
33      <script src="./js/vue.js"></script>
34      <script src="./js/axios.min.js"></script>
35      <script src="./js/md5.js"></script>
36      <script src="./js/vue-uploader.js"></script>
37      <!-- 引入样式 -->
        <!-- <link rel="stylesheet" href="https://unpkg.com/element-ui/lib/
    theme-chalk/index.css"> -->
        <!-- 引入组件库 -->
        <!-- <script src="https://unpkg.com/element-ui/lib/index.js"></script> -->
        <link rel="stylesheet" href="./css/element.css">
        <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/
    flag-icon-css/3.5.0/css/flag-icon.min.css">
        <script src="./js/element.js"></script>
    </head>
```

4.5. Node.js/

4.5.1. app.js

　　这段代码是一个使用 Express 框架搭建的 Node.js 服务器，它处理文件上传、翻译服务、查询翻译结果和文件下载等功能。通过定义不同的 HTTP 路由（如/upload、/translate、/queryRes 和/download），服务器接收客户端的请求，并调用相应的处理函数来完成文件处理、翻译操作和结果返回。此外，服务器还设置了跨域资源共享（CORS）的头部信息，允许来自不同源的请求访问这些服务。

```javascript
1process.env.TMPDIR = 'tmp'; // to avoid the EXDEV rename error, see
2 http://stackoverflow.com/q/21071303/76173
3
4var express = require('express');
5var multipart = require('connect-multiparty');
6var Translate=require("./Translate")
7var multipartMiddleware = multipart();
8var uploader = require('./uploader-node.js')('tmp');
9var app = express();
10var bodyParser = require('body-parser');
11var cors = require('cors');
12var path = require('path');
13
14// Configure access control allow origin header stuff
15var ACCESS_CONTROLL_ALLOW_ORIGIN = true;
16
17app.use(bodyParser.json());
18app.use(cors());
19app.use('/static', express.static(path.join(__dirname, 'res')));
20
21
22// Host most stuff in the public folder
23app.use(express.static(__dirname + '/public'));
24app.use(express.static(__dirname + '/tmp'));
25app.use(express.static(__dirname + '/res'));
26app.use(express.static(__dirname + '/../../dist'));
27
28// Handle uploads through Uploader.js
29app.post('/upload', multipartMiddleware, function(req, res) {
30  uploader.post(req, function(status, filename, original_filename,
31 identifier) {
32    console.log('POST', status, original_filename, identifier);
33    if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
```

```
34        res.header("Access-Control-Allow-Origin", "*");
35        res.header("Access-Control-Allow-Headers", "content-type")
36     }
37     setTimeout(function () {
38       res.json({
39         status:status,
40         identifier:identifier
41       });
42     }, 500);
43   });
44});
45
46
47app.options('/upload', function(req, res){
48   console.log('OPTIONS');
49   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
50     res.header("Access-Control-Allow-Origin", "*");
51     res.header("Access-Control-Allow-Headers", "content-type")
52   }
53   res.status(200).send();
54});
55
56app.options('/translate', function(req, res){
57   console.log('OPTIONS');
58   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
59     res.header("Access-Control-Allow-Origin", "*");
60     res.header("Access-Control-Allow-Headers", "content-type")
61   }
62   res.status(200).send();
63});
64
65app.post('/translate', async function(req, res){
66   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
67     res.header("Access-Control-Allow-Origin", "*");
68     res.header("Access-Control-Allow-Headers", "content-type")
69   }
70   const data=req.body;
71   const transObj=new Translate();
72   const origin=await transObj.uploadTranslate(data.from,data.from,
73data.format,"./tmp/"+data.identifier,true);
74   const result=await transObj.uploadTranslate(data.from,data.to,
75data.format,"./tmp/"+data.identifier,false);
76   res.status(200).json({tid:result.data.tid,ltid:origin.data.tid}).send();
77});
```

```
78
79 app.options('/queryRes', function(req, res){
80   console.log('OPTIONS');
81   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
82     res.header("Access-Control-Allow-Origin", "*");
83     res.header("Access-Control-Allow-Headers", "content-type")
84   }
85   res.status(200).send();
86 });
87
88 app.post('/queryRes', async function(req, res){
89   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
90     res.header("Access-Control-Allow-Origin", "*");
91     res.header("Access-Control-Allow-Headers", "content-type")
92   }
93   const data=req.body;
94   const transObj=new Translate();
95   const result=await transObj.queryRes(data.tid);
96   res.status(200).json({...result}).send();
97 });
98
99 app.options('/download', function(req, res){
100   console.log('OPTIONS');
101   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
102     res.header("Access-Control-Allow-Origin", "*");
103     res.header("Access-Control-Allow-Headers", "content-type")
104   }
105   res.status(200).send();
106 });
107
108 app.post('/download', async function(req, res){
109   if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
110     res.header("Access-Control-Allow-Origin", "*");
111     res.header("Access-Control-Allow-Headers", "content-type")
112   }
113   const data=req.body;
114   const transObj=new Translate();
115   const fileName=await transObj.download(data.tid);
116   res.status(200).json({url:fileName}).send();
117 });
118
119 // Handle status checks on chunks through Uploader.js
120 app.get('/upload', function(req, res) {
121   uploader.get(req, function(status, filename, original_filename,
```

101

```
122 identifier) {
123     console.log('GET', status);
124     if (ACCESS_CONTROLL_ALLOW_ORIGIN) {
125       res.header("Access-Control-Allow-Origin", "*");
126     }
127
128     res.status(status == 'found' ? 200 : 204).send(status);
129   });
130 });
131
132
133 app.get('/downloadFile/:identifier', function(req, res) {
134   res.download("./res/"+req.params.identifier)
135 });
136

   app.get('/download/:identifier', function(req, res) {
     uploader.write(req.params.identifier, res);
   });

   app.listen(3000);
```

4.5.2. package.json

这段代码是一个 JSON 对象，定义了 Node.js 项目的依赖项。具体来说，它列出了以下几个包及其版本：

1. connect-multiparty: 版本 ^2.2.0 - 这是一个中间件,用于处理 HTTP 请求中的多部分表单数据，通常用于文件上传。
2. cors: 版本 ^2.8.5 - 这是一个用于 Express.js 的中间件,它允许在服务器端配置 CORS （跨源资源共享）， 从而允许或限制哪些来源的请求可以访问服务器的资源。
3. express: 版本 ^4.3.1 - 这是一个流行的 Node.js web 应用框架，它提供了一系列强大的功能来构建 web 应用和 API。
4. form-data: 版本 ^4.0.0 - 这是一个模块，用于创建 form-data 对象，这些对象可以用于通过 HTTP 请求发送表单数据，特别是当需要上传文件时。

这些依赖项通常在项目的 package.json 文件中指定,当运行 npm install 或 yarn install 时,这些包及其指定的版本将被安装到项目的 node_modules 目录中。使用^前缀表示安装时会匹配该主要版本下的最新次要版本或补丁版本，例如^4.3.1 会安装 4.x.x 系列中的最新版本，但不包括 5.0.0 及以上的版本。

```
1 {
2   "dependencies": {
3     "connect-multiparty": "^2.2.0",
4     "cors": "^2.8.5",
```

```
5      "express": "^4.3.1",
6      "form-data": "^4.0.0"
7    }
8 }
```

4.5.3. package-lock.json

这段代码是一个 JSON 对象，它描述了 Node.js 项目的依赖关系树。这个对象包含了项目所需的所有包及其版本、解析后的下载链接、完整性哈希值（integrity）、以及每个包的依赖关系。

```
1 {
2   "requires": true,
3   "lockfileVersion": 1,
4   "dependencies": {
5     "accepts": {
6       "version": "1.3.7",
7       "resolved": "https://registry.npmjs.org/accepts/-/accepts-1.3.7.tgz",
8       "integrity": "sha512-Il80Qs2WjYlJIBNzNkK6KYqlVMTbZLXgHx2oT0pU/
9 fjRHyEp+PEfEPY0R3WCwAGVOtauxh1hOxNgIf5bv7dQpA==",
10      "requires": {
11        "mime-types": "~2.1.24",
12        "negotiator": "0.6.2"
13      },
14      "dependencies": {
15        "mime-db": {
16          "version": "1.44.0",
17          "resolved": "https://registry.npmjs.org/mime-db/-/mime-db-1.44.0.tgz",
18          "integrity": "sha512-/NOTfLrsPBVeH7YtFPgsVWveuL+
19 4SjjYxaQ1xtM1KMFj7HdxlBlxeyNLzhyJVx7r4rZGJAZ/6lkKCitSc/Nmpg=="
20        },
21        "mime-types": {
22          "version": "2.1.27",
23          "resolved": "https://registry.npmjs.org/mime-types/-/
24 mime-types-2.1.27.tgz",
25          "integrity": "sha512-JIhqnCasI9yD+SsmkquHBxTSEuZdQX5BuQnS2Vc7puQQQ+
26 8yiP5AY5uWhpdv4YL4VM5c6iliiYWPgJ/nJQLp7w==",
27          "requires": {
28            "mime-db": "1.44.0"
29          }
30        }
31      }
32    },
```

```
33      "array-flatten": {
34        "version": "1.1.1",
35        "resolved": "https://registry.npmjs.org/array-flatten/-/
36 array-flatten-1.1.1.tgz",
37        "integrity": "sha1-ml9pkFGx5wczKPKgCJaLZOopVdI="
38      },
39      "asynckit": {
40        "version": "0.4.0",
41        "resolved": "https://registry.npmmirror.com/asynckit/-/
42 asynckit-0.4.0.tgz",
43        "integrity": "sha512-Oei9OH4tRh0YqU3GxhX79dM/
44 mwVgvbZJaSNaRk+bshkj0S5cfHcgYakreBjrHwatXKbz+IoIdYLxrKim2MjW0Q=="
45      },
46      "body-parser": {
47        "version": "1.19.0",
48        "resolved": "https://registry.npmjs.org/body-parser/-/
49 body-parser-1.19.0.tgz",
50        "integrity": "sha512-dhEPs72UPbDnAQJ9ZKMNTP6ptJaionhP5cBb541n
51 XPlW60Jepo9RV/a4fX4XWW9CuFNK22krhrj1+rgzifNCsw==",
52        "requires": {
53          "bytes": "3.1.0",
54          "content-type": "~1.0.4",
55          "debug": "2.6.9",
56          "depd": "~1.1.2",
57          "http-errors": "1.7.2",
58          "iconv-lite": "0.4.24",
59          "on-finished": "~2.3.0",
60          "qs": "6.7.0",
61          "raw-body": "2.4.0",
62          "type-is": "~1.6.17"
63        },
64        "dependencies": {
65          "ee-first": {
66            "version": "1.1.1",
67            "resolved": "https://registry.npmjs.org/ee-first/-/
68 ee-first-1.1.1.tgz",
69            "integrity": "sha1-WQxhFWsK4vTwJVcyoViyZrxWsh0="
70          },
71          "mime-db": {
72            "version": "1.44.0",
73            "resolved": "https://registry.npmjs.org/mime-db/-/mime-db-1.44.0.tgz",
74            "integrity": "sha512-/NOTfLrsPBVeH7YtFPgsVWveuL+4SjjYxaQ1xt
75 M1KMFj7HdxlBlxeyNLzhyJVx7r4rZGJAZ/6lkKCitSc/Nmpg=="
76          },
```

```json
        "mime-types": {
          "version": "2.1.27",
          "resolved": "https://registry.npmjs.org/mime-types/-/mime-types-2.1.27.tgz",
          "integrity": "sha512-JIhqnCasI9yD+SsmkquHBxTSEuZdQX5BuQnS2Vc7puQQQ+8yiP5AY5uWhpdv4YL4VM5c6iliiYWPgJ/nJQLp7w==",
          "requires": {
            "mime-db": "1.44.0"
          }
        },
        "on-finished": {
          "version": "2.3.0",
          "resolved": "https://registry.npmjs.org/on-finished/-/on-finished-2.3.0.tgz",
          "integrity": "sha1-IPEzZIGwg811M3mSoWlxqi2QaUc=",
          "requires": {
            "ee-first": "1.1.1"
          }
        },
        "qs": {
          "version": "6.7.0",
          "resolved": "https://registry.npmjs.org/qs/-/qs-6.7.0.tgz",
          "integrity": "sha512-VCdBRNFTX1fyE7Nb6FYoURo/SPe62QCaAyzJvUjwRaIsc+NePBEniHlvxFmmX56+HZphIGtV0XeCirBtpDrTyQ=="
        },
        "type-is": {
          "version": "1.6.18",
          "resolved": "https://registry.npmjs.org/type-is/-/type-is-1.6.18.tgz",
          "integrity": "sha512-TkRKr9sUTxEH8MdfuCSP7VizJyzRNMjj2J2do2Jr3Kym598JVdEksuzPQCnlFPW4ky9Q+iA+ma9BGm06XQBy8g==",
          "requires": {
            "media-typer": "0.3.0",
            "mime-types": "~2.1.24"
          }
        }
      }
    },
    "bytes": {
      "version": "3.1.0",
      "resolved": "https://registry.npmjs.org/bytes/-/bytes-3.1.0.tgz",
      "integrity": "sha512-zauLjrfCG+xvoyaqLoV8bLVXXNGC4JqlxFCutSDWA6fJrTo2ZuvLYTqZ7aHBLZSMOopbzwv8f+wZcVzfVTI2Dg=="
    },
    "combined-stream": {
```

```
121        "version": "1.0.8",
122        "resolved": "https://registry.npmmirror.com/combined-stream/-/
123combined-stream-1.0.8.tgz",
124        "integrity": "sha512-FQN4MRfuJeHf7cBbBMJFXhKSDq+2kAArBlmRBvcvFE5
125BB1HZKXtSFASDhdlz9zOYwxh8lDdnvmMOe/+5cdoEdg==",
126        "requires": {
127          "delayed-stream": "~1.0.0"
128        }
129      },
130      "connect-multiparty": {
131        "version": "2.2.0",
132        "resolved": "https://registry.npmjs.org/connect-multiparty/-/
133connect-multiparty-2.2.0.tgz",
134        "integrity": "sha512-zKcpA7cuXGEhuw9Pz7JmVCFmp85jzGLGm/iiagXT
135wyEAJp4ypLPtRS/V4IGuGb9KjjrgHBs6P/gDCpZHnFzksA==",
136        "requires": {
137          "http-errors": "~1.7.0",
138          "multiparty": "~4.2.1",
139          "on-finished": "~2.3.0",
140          "qs": "~6.5.2",
141          "type-is": "~1.6.16"
142        }
143      },
144      "content-disposition": {
145        "version": "0.5.3",
146        "resolved": "https://registry.npmjs.org/content-disposition/-/
147content-disposition-0.5.3.tgz",
148        "integrity": "sha512-ExO0774ikEObIAEV9kDo50o+79VCUdEB6n6lzKgGwu
149pcVeRlhrj3qGAfwq8G6uBJjkqLrhT0qEYFcWng8z1z0g==",
150        "requires": {
151          "safe-buffer": "5.1.2"
152        }
153      },
154      "content-type": {
155        "version": "1.0.4",
156        "resolved": "https://registry.npmjs.org/content-type/-/
157content-type-1.0.4.tgz",
158        "integrity": "sha512-hIP3EEPs8tB9AT1L+NUqtwOAps4mk2Zob89MWXMHj
159HWg9milF/j4osnnQLXBCBFBk/tvIG/tUc9mOUJiPBhPXA=="
160      },
161      "cookie": {
162        "version": "0.4.0",
163        "resolved": "https://registry.npmjs.org/cookie/-/cookie-0.4.0.tgz",
164        "integrity": "sha512-+Hp8fLp57wnUSt0tY0tHEXh4voZRDnoIrZPqlo3DPiI
```

```
165  4y9lwg/jqx+1Om94/W6ZaPDOUbnjOt/99w66zk+l1Xg=="
166      },
167      "cookie-signature": {
168        "version": "1.0.6",
169        "resolved": "https://registry.npmjs.org/cookie-signature/-/
170  cookie-signature-1.0.6.tgz",
171        "integrity": "sha1-4wOogrNCzD7oylE6eZmXNNqzriw="
172      },
173      "cors": {
174        "version": "2.8.5",
175        "resolved": "https://registry.npmmirror.com/cors/-/cors-2.8.5.tgz",
176        "integrity": "sha512-KIHbLJqu73RGr/hnbrO9uBeixNGuvSQjul/jdFvS/
177  KFSIH1hWVd1ng7zOHx+YrEfInLG7q4n6GHQ9cDtxv/P6g==",
178        "requires": {
179          "object-assign": "^4",
180          "vary": "^1"
181        }
182      },
183      "debug": {
184        "version": "2.6.9",
185        "resolved": "https://registry.npmjs.org/debug/-/debug-2.6.9.tgz",
186        "integrity": "sha512-bC7ElrdJaJnPbAP+1EotYvqZsb3ecl5wi6Bfi6BJTUc
187  Nowp6cvspg0jXznRTKDjm/E7AdgFBVeAPVMNcKGsHMA==",
188        "requires": {
189          "ms": "2.0.0"
190        }
191      },
192      "delayed-stream": {
193        "version": "1.0.0",
194        "resolved": "https://registry.npmmirror.com/delayed-stream/-/
195  delayed-stream-1.0.0.tgz",
196        "integrity": "sha512-ZySD7Nf91aLB0RxL4KGrKHBXl7Eds1DAmEdcoVaw
197  XnLD7SDhpNgtuII2aAkg7a7QS41jxPSZ17p4VdGnMHk3MQ=="
198      },
199      "depd": {
200        "version": "1.1.2",
201        "resolved": "https://registry.npmjs.org/depd/-/depd-1.1.2.tgz",
202        "integrity": "sha1-m81S4UwJd2PnSbJ0xDRu0uVgtak="
203      },
204      "destroy": {
205        "version": "1.0.4",
206        "resolved": "https://registry.npmjs.org/destroy/-/destroy-1.0.4.tgz",
207        "integrity": "sha1-l4hXRCxEdJ5CBmE+N5RiBYJqvYA="
208      },
```

```
209    "ee-first": {
210      "version": "1.1.1",
211      "resolved": "https://registry.npmjs.org/ee-first/-/ee-first-1.1.1.tgz",
212      "integrity": "sha1-WQxhFWsK4vTwJVcyoViyZrxWsh0="
213    },
214    "encodeurl": {
215      "version": "1.0.2",
216      "resolved": "https://registry.npmjs.org/encodeurl/-/
217 encodeurl-1.0.2.tgz",
218      "integrity": "sha1-rT/0yG7C0CkyL1oCw6mmBslbP1k="
219    },
220    "escape-html": {
221      "version": "1.0.3",
222      "resolved": "https://registry.npmjs.org/escape-html/-/
223 escape-html-1.0.3.tgz",
224      "integrity": "sha1-Aljq5NPQwJdN4cFpGI7wBR0dGYg="
225    },
226    "etag": {
227      "version": "1.8.1",
228      "resolved": "https://registry.npmjs.org/etag/-/etag-1.8.1.tgz",
229      "integrity": "sha1-Qa4u62XvpiJorr/qg6x9eSmbCIc="
230    },
231    "express": {
232      "version": "4.17.1",
233      "resolved": "https://registry.npmjs.org/express/-/express-4.17.1.tgz",
234      "integrity": "sha512-mHJ9O79RqluphRrcw2X/GTh3k9tVv8YcoyY4
235 Kkh4WDMUYKRZUq0h1o0w2rrrxBqM7VoeUVqgb27xlEMXTnYt4g==",
236      "requires": {
237        "accepts": "~1.3.7",
238        "array-flatten": "1.1.1",
239        "body-parser": "1.19.0",
240        "content-disposition": "0.5.3",
241        "content-type": "~1.0.4",
242        "cookie": "0.4.0",
243        "cookie-signature": "1.0.6",
244        "debug": "2.6.9",
245        "depd": "~1.1.2",
246        "encodeurl": "~1.0.2",
247        "escape-html": "~1.0.3",
248        "etag": "~1.8.1",
249        "finalhandler": "~1.1.2",
250        "fresh": "0.5.2",
251        "merge-descriptors": "1.0.1",
252        "methods": "~1.1.2",
```

```
253            "on-finished": "~2.3.0",
254            "parseurl": "~1.3.3",
255            "path-to-regexp": "0.1.7",
256            "proxy-addr": "~2.0.5",
257            "qs": "6.7.0",
258            "range-parser": "~1.2.1",
259            "safe-buffer": "5.1.2",
260            "send": "0.17.1",
261            "serve-static": "1.14.1",
262            "setprototypeof": "1.1.1",
263            "statuses": "~1.5.0",
264            "type-is": "~1.6.18",
265            "utils-merge": "1.0.1",
266            "vary": "~1.1.2"
267        },
268        "dependencies": {
269            "ee-first": {
270                "version": "1.1.1",
271                "resolved": "https://registry.npmjs.org/ee-first/-/ee-first-1.1.1.tgz",
272                "integrity": "sha1-WQxhFWsK4vTwJVcyoViyZrxWsh0="
273            },
274            "mime-db": {
275                "version": "1.44.0",
276                "resolved": "https://registry.npmjs.org/mime-db/-/mime-db-1.44.0.tgz",
277                "integrity": "sha512-/NOTfLrsPBVeH7YtFPgsVWveuL+4SjjYx
278aQ1xtM1KMFj7HdxlBlxeyNLzhyJVx7r4rZGJAZ/6lkKCitSc/Nmpg=="
279            },
280            "mime-types": {
281                "version": "2.1.27",
282                "resolved": "https://registry.npmjs.org/mime-types/-/
283mime-types-2.1.27.tgz",
284                "integrity": "sha512-JIhqnCasI9yD+SsmkquHBxTSEuZdQX5BuQn
285S2Vc7puQQQ+8yiP5AY5uWhpdv4YL4VM5c6iliiYWPgJ/nJQLp7w==",
286                "requires": {
287                    "mime-db": "1.44.0"
288                }
289            },
290            "on-finished": {
291                "version": "2.3.0",
292                "resolved": "https://registry.npmjs.org/on-finished/-/
293on-finished-2.3.0.tgz",
294                "integrity": "sha1-IPEzZIGwg811M3mSoWlxqi2QaUc=",
295                "requires": {
296                    "ee-first": "1.1.1"
```

```json
297                    }
298                },
299            "qs": {
300                "version": "6.7.0",
301                "resolved": "https://registry.npmjs.org/qs/-/qs-6.7.0.tgz",
302                "integrity": "sha512-VCdBRNFTX1fyE7Nb6FYoURo/SPe62QCaAyzJvU
303jwRaIsc+NePBEniHlvxFmmX56+HZphIGtV0XeCirBtpDrTyQ=="
304            },
305            "type-is": {
306                "version": "1.6.18",
307                "resolved": "https://registry.npmjs.org/type-is/-/
308type-is-1.6.18.tgz",
309                "integrity": "sha512-TkRKr9sUTxEH8MdfuCSP7VizJyzRNMjj2J2do
3102Jr3Kym598JVdEksuzPQCnlFPW4ky9Q+iA+ma9BGm06XQBy8g==",
311                "requires": {
312                    "media-typer": "0.3.0",
313                    "mime-types": "~2.1.24"
314                }
315            }
316        }
317    },
318    "finalhandler": {
319        "version": "1.1.2",
320        "resolved": "https://registry.npmjs.org/finalhandler/-/
321finalhandler-1.1.2.tgz",
322        "integrity": "sha512-aAWcW57uxVNrQZqFXjITpW3sIUQmHGG3qSb9mUah9
323MgMC4NeWhNOlNjXEYq3HjRAvL6arUviZGGJsBg6z0zsWA==",
324        "requires": {
325            "debug": "2.6.9",
326            "encodeurl": "~1.0.2",
327            "escape-html": "~1.0.3",
328            "on-finished": "~2.3.0",
329            "parseurl": "~1.3.3",
330            "statuses": "~1.5.0",
331            "unpipe": "~1.0.0"
332        },
333        "dependencies": {
334            "ee-first": {
335                "version": "1.1.1",
336                "resolved": "https://registry.npmjs.org/ee-first/-/
337ee-first-1.1.1.tgz",
338                "integrity": "sha1-WQxhFWsK4vTwJVcyoViyZrxWsh0="
339            },
340            "on-finished": {
```

```
341            "version": "2.3.0",
342            "resolved": "https://registry.npmjs.org/on-finished/-/
343on-finished-2.3.0.tgz",
344            "integrity": "sha1-IPEzZIGwg811M3mSoWlxqi2QaUc=",
345            "requires": {
346              "ee-first": "1.1.1"
347            }
348          }
349        }
350      },
351      "form-data": {
352        "version": "4.0.0",
353        "resolved": "https://registry.npmmirror.com/form-data/-/
354form-data-4.0.0.tgz",
355        "integrity": "sha512-ETEklSGi5t0QMZuiXoA/Q6vcnxcLQP5vdugSpuAyi6
356SVGi2clPPp+xgEhuMaHC+zGgn31Kd235W35f7Hykkaww==",
357        "requires": {
358          "asynckit": "^0.4.0",
359          "combined-stream": "^1.0.8",
360          "mime-types": "^2.1.12"
361        }
362      },
363      "forwarded": {
364        "version": "0.1.2",
365        "resolved": "https://registry.npmjs.org/forwarded/-/forwarded-0.1.2.tgz",
366        "integrity": "sha1-mMI9qxF1ZXuMBXPozszZGw/xjIQ="
367      },
368      "fresh": {
369        "version": "0.5.2",
370        "resolved": "https://registry.npmjs.org/fresh/-/fresh-0.5.2.tgz",
371        "integrity": "sha1-PYyt2Q2XZWn6g1qx+OSyOhBWBac="
372      },
373      "http-errors": {
374        "version": "1.7.2",
375        "resolved": "https://registry.npmjs.org/http-errors/-/
376http-errors-1.7.2.tgz",
377        "integrity": "sha512-uUQBt3H/cSIVfch6i1EuPNy/YsRSOUBXTVfZ+yR7Zjez
3783qjBz6i9+i4zjNaoqcoFVI4lQJ5plg63TvGfRSDCRg==",
379        "requires": {
380          "depd": "~1.1.2",
381          "inherits": "2.0.3",
382          "setprototypeof": "1.1.1",
383          "statuses": ">= 1.5.0 < 2",
384          "toidentifier": "1.0.0"
```

```
385        },
386        "dependencies": {
387          "inherits": {
388            "version": "2.0.3",
389            "resolved": "https://registry.npmjs.org/inherits/-/
390 inherits-2.0.3.tgz",
391            "integrity": "sha1-Yzwsg+PaQqUC9SRmAiSA9CCCYd4="
392          }
393        }
394      },
395      "iconv-lite": {
396        "version": "0.4.24",
397        "resolved": "https://registry.npmjs.org/iconv-lite/-/
398 iconv-lite-0.4.24.tgz",
399        "integrity": "sha512-v3MXnZAcvnywkTUEZomIActle7RXXeedOR31wwl7Vl
400 yoXO4Qi9arvSenNQWne1TcRwhCL1HwLI21bEqdpj8/rA==",
401        "requires": {
402          "safer-buffer": ">= 2.1.2 < 3"
403        }
404      },
405      "inherits": {
406        "version": "2.0.4",
407        "resolved": "https://registry.npmjs.org/inherits/-/inherits-2.0.4.tgz",
408        "integrity": "sha512-k/vGaX4/Yla3WzyMCvTQOXYeIHvqOKtnqBduzTHpzpQZz
409 AskKMhZ2K+EnBiSM9zGSoIFeMpXKxa4dYeZIQqewQ=="
410      },
411      "ipaddr.js": {
412        "version": "1.9.1",
413        "resolved": "https://registry.npmjs.org/ipaddr.js/-/ipaddr.js-1.9.1.tgz",
414        "integrity": "sha512-0KI/607xoxSToH7GjN1FfSbLoU0+btTicjsQSWQlh/
415 hZykN8KpmMf7uYwPW3R+akZ6R/w18ZlXSHBYXiYUPO3g=="
416      },
417      "media-typer": {
418        "version": "0.3.0",
419        "resolved": "https://registry.npmjs.org/media-typer/-/
420 media-typer-0.3.0.tgz",
421        "integrity": "sha1-hxDXrwqmJvj/+hzgAWhUUmMlV0g="
422      },
423      "merge-descriptors": {
424        "version": "1.0.1",
425        "resolved": "https://registry.npmjs.org/merge-descriptors/-/
426 merge-descriptors-1.0.1.tgz",
427        "integrity": "sha1-sAqqVW3YtEVoFQ7J0blT8/kMu2E="
428      },
```

```json
    "methods": {
      "version": "1.1.2",
      "resolved": "https://registry.npmjs.org/methods/-/methods-1.1.2.tgz",
      "integrity": "sha1-VSmk1nZUE07cxSZmVoNbD4Ua/O4="
    },
    "mime": {
      "version": "1.6.0",
      "resolved": "https://registry.npmjs.org/mime/-/mime-1.6.0.tgz",
      "integrity": "sha512-x0Vn8spI+wuJ1O6S7gnbaQg8Pxh4NNHb7KSINmEWKiP
E4RKOplvijn+NkmYmmRgP68mc70j2EbeTFRsrswaQeg=="
    },
    "mime-db": {
      "version": "1.45.0",
      "resolved": "https://registry.npmjs.org/mime-db/-/mime-db-1.45.0.tgz",
      "integrity": "sha512-CkqLUxUk15hofLoLyljJSrukZi8mAtgd+yE5uO4tqRZs
dsAJKv0O+rFMhVDRJgozy+yG6md5KwuXhD4ocIoP+w=="
    },
    "mime-types": {
      "version": "2.1.28",
      "resolved": "https://registry.npmjs.org/mime-types/-/
mime-types-2.1.28.tgz",
      "integrity": "sha512-0TO2yJ5YHYr7M2zzT7gDU1tbwHxEUWBCLt0lscSNpcdAf
FyJOVEpRYNS7EXVcTLNj/25QO8gulHC5JtTzSE2UQ==",
      "requires": {
        "mime-db": "1.45.0"
      }
    },
    "ms": {
      "version": "2.0.0",
      "resolved": "https://registry.npmjs.org/ms/-/ms-2.0.0.tgz",
      "integrity": "sha1-VgiurfwAvmwpAd9fmGF4jeDVl8g="
    },
    "multiparty": {
      "version": "4.2.2",
      "resolved": "https://registry.npmjs.org/multiparty/-/multiparty-4.2.2.tgz",
      "integrity": "sha512-NtZLjlvsjcoGrzojtwQwn/Tm90aWJ6XXtPppYF4
WmOk/6ncdwMMKggFY2NlRRN9yiCEIVxpOfPWahVEG2HAG8Q==",
      "requires": {
        "http-errors": "~1.8.0",
        "safe-buffer": "5.2.1",
        "uid-safe": "2.1.5"
      },
      "dependencies": {
        "http-errors": {
```

```
473          "version": "1.8.0",
474          "resolved": "https://registry.npmjs.org/http-errors/-/
475http-errors-1.8.0.tgz",
476          "integrity": "sha512-4I8r0C5JDhT5VkvI47QktDW75rNlGVsUf/8hzjCC/
477wkWI/jdTRmBb9aI7erSG82r1bjKY3F6k28WnsVxB1C73A==",
478          "requires": {
479            "depd": "~1.1.2",
480            "inherits": "2.0.4",
481            "setprototypeof": "1.2.0",
482            "statuses": ">= 1.5.0 < 2",
483            "toidentifier": "1.0.0"
484          }
485        },
486        "safe-buffer": {
487          "version": "5.2.1",
488          "resolved": "https://registry.npmjs.org/safe-buffer/-/
489safe-buffer-5.2.1.tgz",
490          "integrity": "sha512-rp3So07KcdmmKbGvgaNxQSJr7bGVSVk5S9Eq1F+
491ppbRo70+YeaDxkw5Dd8NPN+GD6bjnYm2VuPuCXmpuYvmCXQ=="
492        },
493        "setprototypeof": {
494          "version": "1.2.0",
495          "resolved": "https://registry.npmjs.org/setprototypeof/-/
496setprototypeof-1.2.0.tgz",
497          "integrity": "sha512-E5LDX7Wrp85Kil5bhZv46j8jOeboKq5JMmYM3g
498VGdGH8xFpPWXUMsNrlODCrkoxMEeNi/XZIwuRvY4XNwYMJpw=="
499        }
500      }
501    },
502    "negotiator": {
503      "version": "0.6.2",
504      "resolved": "https://registry.npmjs.org/negotiator/-/
505negotiator-0.6.2.tgz",
506      "integrity": "sha512-hZXc7K2e+PgeI1eDBe/10Ard4ekbfrrqG8Ep+8Jmf4
507JID2bNg7NvCPOZN+kfF574pFQI7mum2AUqDidoKqcTOw=="
508    },
509    "object-assign": {
510      "version": "4.1.1",
511      "resolved": "https://registry.npmmirror.com/object-assign/-/
512object-assign-4.1.1.tgz",
513      "integrity": "sha512-rJgTQnkUnH1sFw8yT6VSU3zD3sWmu6sZhIseY8VX+GR
514u3P6F7Fu+JNDoXfklElbLJSnc3FUQHVe4cU5hj+BcUg=="
515    },
516    "on-finished": {
```

```
517        "version": "2.3.0",
518        "resolved": "https://registry.npmjs.org/on-finished/-/
519on-finished-2.3.0.tgz",
520        "integrity": "sha1-IPEzZIGwg811M3mSoWlxqi2QaUc=",
521        "requires": {
522          "ee-first": "1.1.1"
523        }
524      },
525      "parseurl": {
526        "version": "1.3.3",
527        "resolved": "https://registry.npmjs.org/parseurl/-/parseurl-1.3.3.tgz",
528        "integrity": "sha512-CiyeOxFT/JZyN5m0z9PfXw4SCBJ6Sygz1Dpl0wqj
529lhDEGGBP1GnsUVEL0p63hoG1fcj3fHynXi9NYO4nWOL+qQ=="
530      },
531      "path-to-regexp": {
532        "version": "0.1.7",
533        "resolved": "https://registry.npmjs.org/path-to-regexp/-/
534path-to-regexp-0.1.7.tgz",
535        "integrity": "sha1-32BBeABfUi8V60SQ5yR6G/qmf4w="
536      },
537      "proxy-addr": {
538        "version": "2.0.6",
539        "resolved": "https://registry.npmjs.org/proxy-addr/-/
540proxy-addr-2.0.6.tgz",
541        "integrity": "sha512-dh/frvCBVmSsDYzw6n926jv974gddhkFPfiN8hP
542Oi30Wax25QZyZEGveluCgliBnqmuM+UJmBErbAUFIoDbjOw==",
543        "requires": {
544          "forwarded": "~0.1.2",
545          "ipaddr.js": "1.9.1"
546        }
547      },
548      "qs": {
549        "version": "6.5.2",
550        "resolved": "https://registry.npmjs.org/qs/-/qs-6.5.2.tgz",
551        "integrity": "sha512-N5ZAX4/LxJmF+7wN74pUD6qAh9/wnvdQcjq9TZjev
552vXzSUo7bfmw91saqMjzGS2xq91/odN2dW/WOl7qQHNDGA=="
553      },
554      "random-bytes": {
555        "version": "1.0.0",
556        "resolved": "https://registry.npmjs.org/random-bytes/-/
557random-bytes-1.0.0.tgz",
558        "integrity": "sha1-T2ih3Arli9P7lYSMMDJNt11kNgs="
559      },
560      "range-parser": {
```

```
561      "version": "1.2.1",
562      "resolved": "https://registry.npmjs.org/range-parser/-/
563range-parser-1.2.1.tgz",
564      "integrity": "sha512-Hrgsx+orqoygnmhFbKaHE6c296J+HTAQXoxEF6g
565NupROmmGJRoyzfG3ccAveqCBrwr/2yxQ5BVd/GTl5agOwSg=="
566    },
567    "raw-body": {
568      "version": "2.4.0",
569      "resolved": "https://registry.npmjs.org/raw-body/-/raw-body-2.4.0.tgz",
570      "integrity": "sha512-4Oz8DUIwdvoa5qMJelxipzi/iJIi40O5cGV1wNYp
5715hvZP8ZN0T+jiNkL0QepXs+EsQ9XJ8ipEDoiH70ySUJP3Q==",
572      "requires": {
573        "bytes": "3.1.0",
574        "http-errors": "1.7.2",
575        "iconv-lite": "0.4.24",
576        "unpipe": "1.0.0"
577      }
578    },
579    "safe-buffer": {
580      "version": "5.1.2",
581      "resolved": "https://registry.npmjs.org/safe-buffer/-/
582safe-buffer-5.1.2.tgz",
583      "integrity": "sha512-Gd2UZBJDkXlY7GbJxfsE8/nvKkUEU1G38c1siN6QP
5846a9PT9MmHB8GnpscSmMJSoF8LOIrt8ud/wPtojys4G6+g=="
585    },
586    "safer-buffer": {
587      "version": "2.1.2",
588      "resolved": "https://registry.npmjs.org/safer-buffer/-/
589safer-buffer-2.1.2.tgz",
590      "integrity": "sha512-YZo3K82SD7Riyi0E1EQPojLz7kpepnSQI9IyPbHHg1XX
591Xevb5dJI7tpyN2ADxGcQbHG7vcyRHk0cbwqcQriUtg=="
592    },
593    "send": {
594      "version": "0.17.1",
595      "resolved": "https://registry.npmjs.org/send/-/send-0.17.1.tgz",
596      "integrity": "sha512-BsVKsiGcQMFwT8UxypobUKyv7irCNRHk1T0G680vk88yf
5976LBByGcZJOTJCrTP2xVN6yI+XjPJcNuE3V4fT9sAg==",
598      "requires": {
599        "debug": "2.6.9",
600        "depd": "~1.1.2",
601        "destroy": "~1.0.4",
602        "encodeurl": "~1.0.2",
603        "escape-html": "~1.0.3",
604        "etag": "~1.8.1",
```

```
605            "fresh": "0.5.2",
606            "http-errors": "~1.7.2",
607            "mime": "1.6.0",
               "ms": "2.1.1",
               "on-finished": "~2.3.0",
               "range-parser": "~1.2.1",
               "statuses": "~1.5.0"
           },
           "dependencies": {
             "ee-first": {
               "version": "1.1.1",
               "resolved": "https://registry.npmjs.org/ee-first/-/
   ee-first-1.1.1.tgz",
               "integrity": "sha1-WQxhFWsK4vTwJVcyoViyZrxWsh0="
             },
             "ms": {
               "version": "2.1.1",
               "resolved": "https://registry.npmjs.org/ms/-/ms-2.1.1.tgz",
               "integrity": "sha512-tgp+dl5cGk28utYktBsrFqA7HKgrhgPsg6Z/Efh
   WI4gl1Hwq8B/GmY/0oXZ6nF8hDVesS/FpnYaD/kOWhYQvyg=="
             },
             "on-finished": {
               "version": "2.3.0",
               "resolved": "https://registry.npmjs.org/on-finished/-/
   on-finished-2.3.0.tgz",
               "integrity": "sha1-IPEzZIGwg811M3mSoWlxqi2QaUc=",
               "requires": {
                 "ee-first": "1.1.1"
               }
             }
           }
         },
         "serve-static": {
           "version": "1.14.1",
           "resolved": "https://registry.npmjs.org/serve-static/-/
   serve-static-1.14.1.tgz",
           "integrity": "sha512-JMrvUwE54emCYWlTI+hGrGv5I8dEwmco/
   00EvkzIIsR7MqrHonbD9pO2MOfFnpFntl7ecpZs+3mW+XbQZu9QCg==",
           "requires": {
             "encodeurl": "~1.0.2",
             "escape-html": "~1.0.3",
             "parseurl": "~1.3.3",
             "send": "0.17.1"
           }
```

```
    },
    "setprototypeof": {
      "version": "1.1.1",
      "resolved": "https://registry.npmjs.org/setprototypeof/-/
setprototypeof-1.1.1.tgz",
      "integrity": "sha512-JvdAWfbXeIGaZ9cILp38HntZSFSo3mWg6xGc
JJsd+d4aRMOqauag1C63dJfDw7OaMYwEbHMOxEZ1lqVRYP2OAw=="
    },
    "statuses": {
      "version": "1.5.0",
      "resolved": "https://registry.npmjs.org/statuses/-/statuses-1.5.0.tgz",
      "integrity": "sha1-Fhx9rBd2Wf2YEfQ3cfqZOBR4Yow="
    },
    "toidentifier": {
      "version": "1.0.0",
      "resolved": "https://registry.npmjs.org/toidentifier/-/
toidentifier-1.0.0.tgz",
      "integrity": "sha512-yaOH/Pk/VEhBWWTlhI+qXxDFXlejDGcQipMlyxd
a9nthulaxLZUNcUqFxokp0vcYnvteJln5FNQDRrxj3YcbVw=="
    },
    "type-is": {
      "version": "1.6.18",
      "resolved": "https://registry.npmjs.org/type-is/-/type-is-1.6.18.tgz",
      "integrity": "sha512-TkRKr9sUTxEH8MdfuCSP7VizJyzRNMjj2J2do2Jr3K
ym598JVdEksuzPQCnlFPW4ky9Q+iA+ma9BGm06XQBy8g==",
      "requires": {
        "media-typer": "0.3.0",
        "mime-types": "~2.1.24"
      }
    },
    "uid-safe": {
      "version": "2.1.5",
      "resolved": "https://registry.npmjs.org/uid-safe/-/uid-safe-2.1.5.tgz",
      "integrity": "sha512-KPHm4VL5dDXKz01UuEd88Df+KzynaohSL9fBh096KW
AxSKZQDI2uBrVqtvRM4rwrIrRRKsdLNML/lnaaVSRioA==",
      "requires": {
        "random-bytes": "~1.0.0"
      }
    },
    "unpipe": {
      "version": "1.0.0",
      "resolved": "https://registry.npmjs.org/unpipe/-/unpipe-1.0.0.tgz",
      "integrity": "sha1-sr9O6FFKrmFltIF4KdIbLvSZBOw="
    },
```

```
      "utils-merge": {
        "version": "1.0.1",
        "resolved": "https://registry.npmjs.org/utils-merge/-/
  utils-merge-1.0.1.tgz",
        "integrity": "sha1-n5VxD1CiZ5R7LMwSR0HBAoQn5xM="
      },
      "vary": {
        "version": "1.1.2",
        "resolved": "https://registry.npmjs.org/vary/-/vary-1.1.2.tgz",
        "integrity": "sha1-IpnwLG3tMNSllhsLn3RSShj2NPw="
      }
    }
  }
```

4.5.4. Translate.js

代码定义了一个名为 Translate 的类，它使用 Node.js 的 crypto、fs、https、form-data 和 querystring 模块来实现文件上传、翻译结果查询和文件下载的功能。该类提供了以下方法：

1. generateRandomString: 生成一个随机的字符串。
2. calculateStringMD5: 计算给定字符串的 MD5 哈希值。
3. calculateFileMD5: 计算文件的 MD5 哈希值。
4. uploadTranslate: 上传文件并进行翻译，支持从一种语言翻译到另一种语言。
5. queryRes: 查询翻译进度和结果。
6. download: 下载翻译后的文件。

这些方法通过 HTTPS 请求与一个名为 www.fanyigou.com 的服务器进行交互，使用 POST 方法发送数据，并处理服务器的响应。类中还包含了用于生成安全令牌的逻辑，确保请求的安全性。最后，该类通过 module.exports 导出，以便在其他模块中使用。

```javascript
1 const crypto = require('crypto');
2 const fs = require('fs');
3 const https = require('https');
4 const FormData = require('form-data');
5 const querystring = require('querystring');
6
7 class Translate {
8   constructor() {
9     this.appid = '1718532479319';
10    this.seckey = '683600f147f2afff51607f8fc7426a119a67915e';
11  }
12
13  generateRandomString() {
14    return crypto.randomBytes(16).toString('hex').slice(0, 16);
```

```
15  }
16
17  calculateStringMD5(inputString) {
18    return crypto.createHash('md5').update(inputString).digest('hex').
19    toUpperCase();
20  }
21
22
23  async calculateFileMD5(filePath) {
24    return new Promise((resolve, reject) => {
25      const hash = crypto.createHash('md5');
26      const stream = fs.createReadStream(filePath);
27
28      stream.on('data', (chunk) => {
29        hash.update(chunk);
30      });
31
32      stream.on('end', () => {
33        const md5 = hash.digest('hex');
34        resolve(md5);
35      });
36
37      stream.on('error', (err) => {
38        reject(err);
39      });
40    });
41  }
42
43   async uploadTranslate(from, to,format,filePath,edit){
44    const form = new FormData();
45    // 添加文件参数
46    const renamePath=(filePath).toString().substring(0,(filePath).
47    toString().indexOf(".1"))+"."+format;
48    if(edit){
49      fs.renameSync(filePath,renamePath)
50    }
51    form.append('file', fs.createReadStream(renamePath));
52    const url="/TranslateApi/api/uploadTranslate";
53    const md5= await this.calculateFileMD5(renamePath);
54    const nonce_str=this.generateRandomString();
55    const token=this.calculateStringMD5("appid="+this.appid+
56    "&bilingualControl=0&from="+from+"&md5="+md5+"&nonce_str=
57    "+nonce_str+"&privatekey="+this.seckey+"&to="+to);
58    form.append("appid",this.appid);
```

```
59    form.append("from",from);
60    form.append("to",to);
61    form.append("nonce_str",nonce_str);
62    form.append("md5",md5);
63    form.append("bilingualControl",0);
64    form.append("token",token);
65    return new Promise((resolve, reject) => {
66      try {
67        var options = {
68              hostname: 'www.fanyigou.com',
69              port: 443,
70              path: url,
71              method: 'POST',
72              headers: {...form.getHeaders()}
73        };
74        var req = https.request(options, function(res) {
75              console.log('Status: ' + res.statusCode);
76              console.log('Headers: ' + JSON.stringify(res.headers));
77              res.setEncoding('utf8');
78              let responseBody = ''; // 用于存储响应数据
79              res.on('data', function (body) {
80                  console.log('Body: ' + body);
81                  responseBody+=body;
82              });
83              res.on('end', function() {
84                  resolve(JSON.parse(responseBody));
85// 在请求结束时，解析 Promise 并返回响应数据
86              });
87        });
88        req.on('error', function(e) {
89              console.log('problem with request: ' + e.message);
90        });
91
92        form.pipe(req);
93        form.on('end', () => {
94          req.end();
95        });
96      } catch (error) {
97        console.error(error);
98      }
99    });
100 }
101
102 async queryRes(tid){
```

```
103    const url="/TranslateApi/api/queryTransProgress";
104    const nonce_str=this.generateRandomString();
105    const token=this.calculateStringMD5("appid="+this.appid+
106    "&nonce_str="+nonce_str+"&privatekey="+this.seckey+"&tid="+tid);
107    const postData = querystring.stringify({
108      'appid': this.appid,
109      'nonce_str':nonce_str,
110      'token': token,
111      'tid':tid
112    });
113    return new Promise((resolve, reject) => {
114      try {
115        var options = {
116            hostname: 'www.fanyigou.com',
117            port: 443,
118            path: url,
119            method: 'POST',
120            headers: {
121              'Content-Type': 'application/x-www-form-urlencoded',
122              'Content-Length': Buffer.byteLength(postData)
123            }
124        };
125        var req = https.request(options, function(res) {
126            console.log('Status: ' + res.statusCode);
127            console.log('Headers: ' + JSON.stringify(res.headers));
128            res.setEncoding('utf8');
129            let responseBody = ''; // 用于存储响应数据
130            res.on('data', function (body) {
131                console.log('Body: ' + body);
132                responseBody+=body;
133            });
134            res.on('end', function() {
135                resolve(JSON.parse(responseBody));
136// 在请求结束时，解析 Promise 并返回响应数据
137            });
138        });
139        req.on('error', function(e) {
140            console.log('problem with request: ' + e.message);
141        });
142
143        req.write(postData);
144        req.end();
145      } catch (error) {
146        console.error(error);
```

```
147        }
148      });
149  }
150
151  async download(tid){
152    const fileName=crypto.randomBytes(8).toString('hex').slice(0, 8);
153    const url="/TranslateApi/api/downloadFile";
154    const nonce_str=this.generateRandomString();
155    const dtype=2;
156    const token=this.calculateStringMD5("appid="+this.appid+"&dtype=
157    "+dtype+"&nonce_str="+nonce_str+"&privatekey="+this.seckey+"&tid="+tid);
158    console.log(token);
159    const postData = querystring.stringify({
160      'appid': this.appid,
161      'nonce_str':nonce_str,
162      'token': token,
163      'dtype':2,
164      'tid':tid
165    });
166    return new Promise((resolve, reject) => {
167      try {
168        var options = {
169            hostname: 'www.fanyigou.com',
170            port: 443,
171            path: url,
172            method: 'POST',
173            headers: {
174              'Content-Type': 'application/x-www-form-urlencoded',
175              'Content-Length': Buffer.byteLength(postData)
176            }
177        };
178        var req = https.request(options, function(res) {
179            console.log('Status: ' + res.statusCode);
180            console.log('Headers: ' + JSON.stringify(res.headers));
181            // 创建写入流
182            const filePath ='./res/'+fileName+res.headers['doc-suffix'];
183            const fileStream = fs.createWriteStream(filePath);
184
185            // 管道连接：将响应流管道连接到文件写入流
186            res.pipe(fileStream);
187
188            // 监听写入流结束事件
189            fileStream.on('finish', () => {
190                resolve(fileName+res.headers["doc-suffix"])
```

```
191            fileStream.close(resolve);
192            console.log('File downloaded and saved successfully.');
193          });
194
195          // 监听写入流错误事件
196          fileStream.on('error', (err) => {
197            console.error('Error writing file:', err);
198          });
199        });
200        req.on('error', function(e) {
201            console.log('problem with request: ' + e.message);
202        });
203
204        req.write(postData);
205        req.end();
206      } catch (error) {
207        console.error(error);
208      }
209    });
210  }
211  }
212
213// (async()=>{
    //    await new Translate().download(59802197);
    // })()

   module.exports=Translate
```

4.5.5. Uploader-node.js

用于处理前端发来的文件流,转为临时文件并保持到服务器的文件系统中。

```
1var fs = require('fs'),
2  path = require('path'),
3  util = require('util'),
4  Stream = require('stream').Stream;
5
6module.exports = flow = function(temporaryFolder) {
7  var $ = this;
```

```
 8  $.temporaryFolder = temporaryFolder;
 9  $.maxFileSize = null;
10  $.fileParameterName = 'file';
11
12  try {
13    fs.mkdirSync($.temporaryFolder);
14  } catch (e) {}
15
16  function cleanIdentifier(identifier) {
17    return identifier.replace(/[^0-9A-Za-z_-]/g, '');
18  }
19
20  function getChunkFilename(chunkNumber, identifier) {
21    // Clean up the identifier
22    identifier = cleanIdentifier(identifier);
23    // What would the file name be?
24    return path.resolve($.temporaryFolder, './uploader-' + identifier +
25      '.' + chunkNumber);
26  }
27
28  function validateRequest(chunkNumber, chunkSize, totalSize, identifier,
29 filename, fileSize) {
30    // Clean up the identifier
31    identifier = cleanIdentifier(identifier);
32
33    // Check if the request is sane
34    if (chunkNumber == 0 || chunkSize == 0 || totalSize == 0 ||
35     identifier.length == 0 || filename.length == 0) {
36      return 'non_uploader_request';
37    }
38    var numberOfChunks = Math.max(Math.floor(totalSize / (chunkSize *
39     1.0)), 1);
40    if (chunkNumber > numberOfChunks) {
41      return 'invalid_uploader_request1';
42    }
43
44    // Is the file too big?
45    if ($.maxFileSize && totalSize > $.maxFileSize) {
46      return 'invalid_uploader_request2';
47    }
48
49    if (typeof(fileSize) != 'undefined') {
50      if (chunkNumber < numberOfChunks && fileSize != chunkSize) {
51        // The chunk in the POST request isn't the correct size
```

```
52          return 'invalid_uploader_request3';
53        }
54        if (numberOfChunks > 1 && chunkNumber == numberOfChunks &&
55   fileSize != ((totalSize % chunkSize) + parseInt(chunkSize))) {
56          // The chunks in the POST is the last one, and the fil is
57   not the correct size
58          return 'invalid_uploader_request4';
59        }
60        if (numberOfChunks == 1 && fileSize != totalSize) {
61          // The file is only a single chunk, and the data size does not fit
62          return 'invalid_uploader_request5';
63        }
64      }
65
66      return 'valid';
67    }
68
69    //'found', filename, original_filename, identifier
70    //'not_found', null, null, null
71    $.get = function(req, callback) {
72      var chunkNumber = req.param('chunkNumber', 0);
73      var chunkSize = req.param('chunkSize', 0);
74      var totalSize = req.param('totalSize', 0);
75      var identifier = req.param('identifier', "");
76      var filename = req.param('filename', "");
77
78      if (validateRequest(chunkNumber, chunkSize, totalSize, identifier,
79       filename) == 'valid') {
80        var chunkFilename = getChunkFilename(chunkNumber, identifier);
81        fs.exists(chunkFilename, function(exists) {
82          if (exists) {
83            callback('found', chunkFilename, filename, identifier);
84          } else {
85            callback('not_found', null, null, null);
86          }
87        });
88      } else {
89        callback('not_found', null, null, null);
90      }
91    };
92
93    //'partly_done', filename, original_filename, identifier
94    //'done', filename, original_filename, identifier
95    //'invalid_uploader_request', null, null, null
```

```
 96  //'non_uploader_request', null, null, null
 97  $.post = function(req, callback) {
 98
 99    var fields = req.body;
100    var files = req.files;
101
102    var chunkNumber = fields['chunkNumber'];
103    var chunkSize = fields['chunkSize'];
104    var totalSize = fields['totalSize'];
105    var identifier = cleanIdentifier(fields['identifier']);
106    var filename = fields['filename'];
107
108    if (!files[$.fileParameterName] || !files[$.fileParameterName].size) {
109      callback('invalid_uploader_request', null, null, null);
110      return;
111    }
112
113    var original_filename = files[$.fileParameterName]['originalFilename'];
114    var validation = validateRequest(chunkNumber, chunkSize, totalSize,
115      identifier, filename, files[$.fileParameterName].size);
116    if (validation == 'valid') {
117      var chunkFilename = getChunkFilename(chunkNumber, identifier);
118      console.log(chunkFilename)
119      // Save the chunk (TODO: OVERWRITE)
120      fs.rename(files[$.fileParameterName].path, chunkFilename,
121  function() {
122
123        // Do we have all the chunks?
124        var currentTestChunk = 1;
125        var numberOfChunks = Math.max(Math.floor(totalSize /
126  (chunkSize * 1.0)), 1);
127        var testChunkExists = function() {
128          fs.exists(getChunkFilename(currentTestChunk, identifier),
129  function(exists) {
130            if (exists) {
131              currentTestChunk++;
132              if (currentTestChunk > numberOfChunks) {
133                callback('done', filename, original_filename, identifier);
134              } else {
135                // Recursion
136                testChunkExists();
137              }
138            } else {
139              callback('partly_done', filename, original_filename,
```

```
140 identifier);
141             }
142         });
143       };
144       testChunkExists();
145     });
146   } else {
147     callback(validation, filename, original_filename, identifier);
148   }
149 };
150
151 // Pipe chunks directly in to an existsing WritableStream
152 //    r.write(identifier, response);
153 //    r.write(identifier, response, {end:false});
154 //
155 //    var stream = fs.createWriteStream(filename);
156 //    r.write(identifier, stream);
157 //    stream.on('data', function(data){...});
158 //    stream.on('finish', function(){...});
159 $.write = function(identifier, writableStream, options) {
160   options = options || {};
161   options.end = (typeof options['end'] == 'undefined' ? true :
162    options['end']);
163
164   // Iterate over each chunk
165   var pipeChunk = function(number) {
166
167     var chunkFilename = getChunkFilename(number, identifier);
168     fs.exists(chunkFilename, function(exists) {
169
170       if (exists) {
171         // If the chunk with the current number exists,
172         // then create a ReadStream from the file
173         // and pipe it to the specified writableStream.
174         var sourceStream = fs.createReadStream(chunkFilename);
175         sourceStream.pipe(writableStream, {
176           end: false
177         });
178         sourceStream.on('end', function() {
179           // When the chunk is fully streamed,
180           // jump to the next one
181           pipeChunk(number + 1);
182         });
183       } else {
```

```
184          // When all the chunks have been piped, end the stream
185          if (options.end) writableStream.end();
186          if (options.onDone) options.onDone();
187        }
188      });
189    };
190    pipeChunk(1);
191  };
192
193  $.clean = function(identifier, options) {
194    options = options || {};
195
196    // Iterate over each chunk
197    var pipeChunkRm = function(number) {
198
199      var chunkFilename = getChunkFilename(number, identifier);
200
201      //console.log('removing pipeChunkRm ', number, 'chunkFilename',
202 chunkFilename);
203      fs.exists(chunkFilename, function(exists) {
204        if (exists) {
205
206          console.log('exist removing ', chunkFilename);
207          fs.unlink(chunkFilename, function(err) {
208            if (err && options.onError) options.onError(err);
209          });
210

             pipeChunkRm(number + 1);

        } else {

             if (options.onDone) options.onDone();

        }
      });
    };
    pipeChunkRm(1);
  };

  return $;
};
```

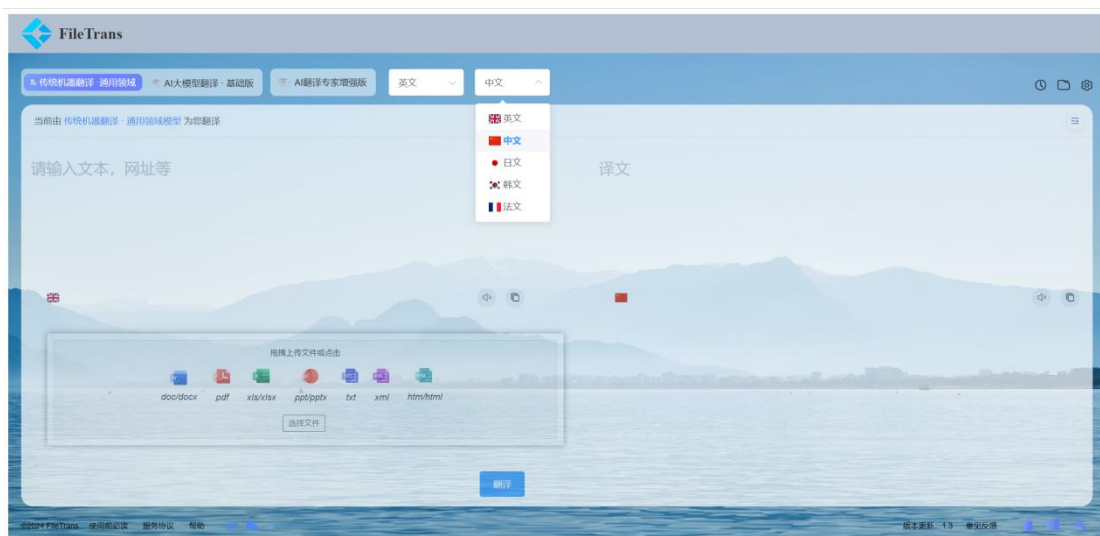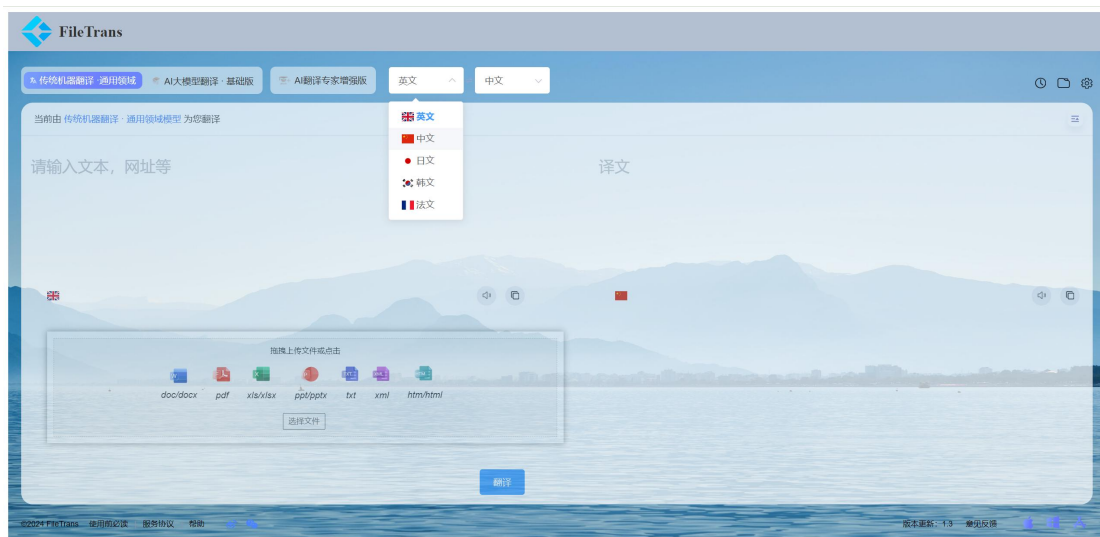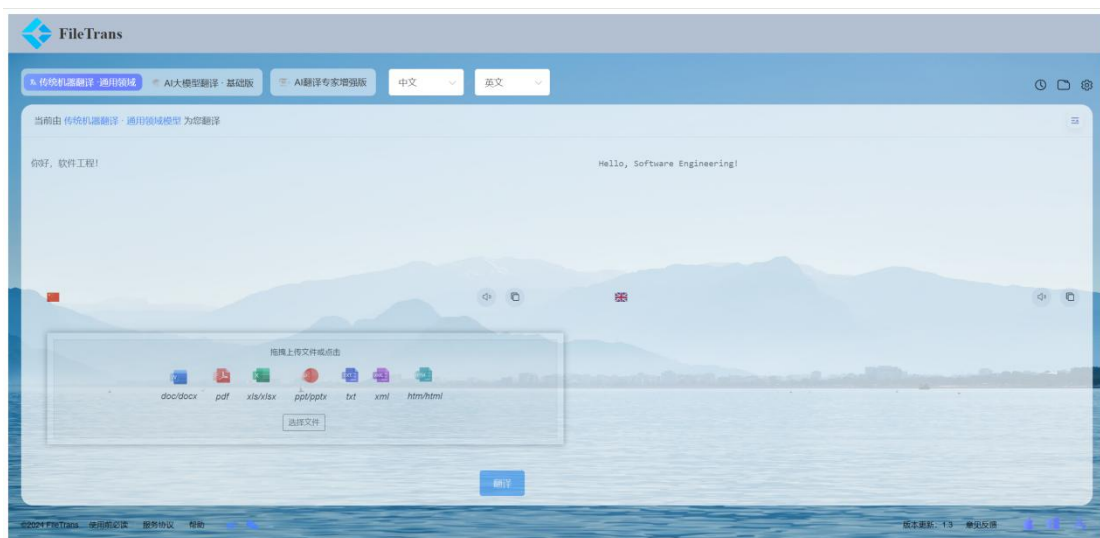### 4.5.6. res

用于存放翻译好的文档

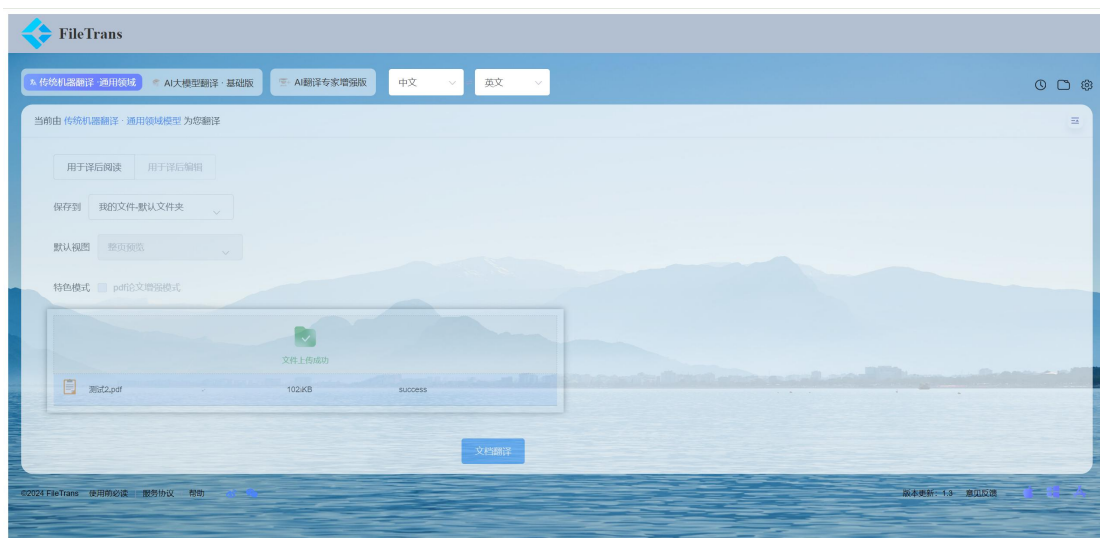### 4.5.7. tmp

用于存放上传的文档

5. 系统界面展示

5.1. 主界面

在主界面中：
- 用户在输入框中输入待翻译的文本
- 用户在下拉菜单中选择相应的目标 语言。
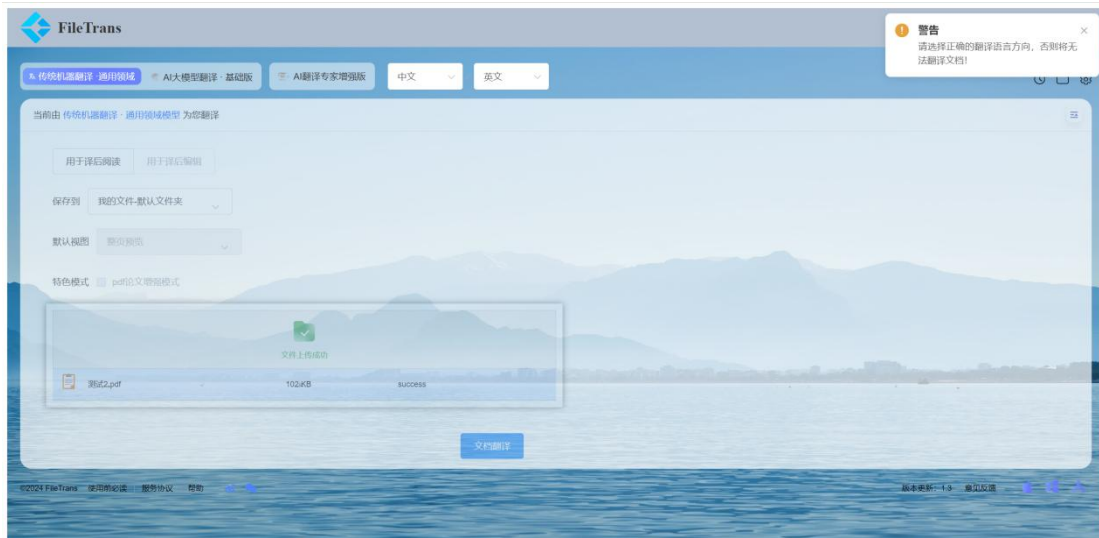- 用户可以点击复制按钮，待翻译文本或翻译结果会自动复制到用户的剪贴板。

5.2. 文档翻译界面

在这个界面,用户点击上传文件后可以看到上传成功的文档。点击翻译，会先进行提示然后再开始进行文档翻译

5.3. 文档预览界面

在这个界面，用户可以看到翻译的源文档和译文文档，可以同步滚动，点击右上方的放大或者缩小按钮可以同时放大或者缩小文档，点击导出即可下载 PDF 格式的翻译文档。

6. 总结

在这个课程设计项目中，我开发了一个名为 FileTrans 的 Web 前端系统。这个系统专注于提供高效的文档翻译服务，支持多种语言的文档翻译，并提供了文档上传、预览以及翻译后的文档下载功能。FileTrans 的设计初衷是为了简化用户的翻译流程，提供一个集成化的翻译解决方案。

在开发过程中，我深入研究了 Web 应用的开发技术和最佳实践。我充分利用了 Web 技

术的优势，如灵活的页面布局、高效的文件处理和流畅的用户交互，确保 FileTrans 能够提供无缝的用户体验。

在代码编写方面，我坚持采用清晰和规范的编程风格。代码逻辑分明，每个组件和功能都经过精心设计，确保其独立性和可维护性。我还注重代码的可读性，通过详细的注释和文档，确保自己能够轻松理解和维护代码。

尽管开发过程中遇到了不少挑战，比如处理不同格式的文档、文档同步滚动，文档预览，文件上传，调用翻译 API 等，但我通过不断的技术探索和自我挑战，成功克服了这些难题。这些经历不仅增强了我的技术能力，也提升了我的解决问题能力。

总体而言，FileTrans 的开发是一次宝贵的个人实践经历。它不仅提高了我的技术水平，也让我深刻理解到软件开发的核心在于解决实际问题和满足用户需求。我期待将这些经验和教训应用到未来的项目中，继续在软件工程的道路上不断进步。