南开大学

计算机网络 课程实验报告

TCP/IP 实验

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2077 年 1 月 1 日

目录

图表

1 一级标题

整理了在实验报告可能用到的任何元素，**包括图表(及其编号)，树状图，代码块，数学公式，高亮，样式内容块等。**

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测试中文:

通过这次实验，我深刻体会到了同态加密技术的强大和实用性，特别是在保护数据隐私的同时执行复杂计算的能力。使用 *Microsoft SEAL* 库进行加密计算不仅加深了我对同态加密原理的理解，也提升了我的编程技能和解决实际问题的能力。

分点:

1. *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*

2. *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*

- *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*

- *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*

- test[1]

terms:

Fact If a term list has a lot of text, and maybe other inline content.

Tip To make it wide, simply insert a blank line between the items.

测试文本   测试文本   测试文本   测试文本

测试文本   测试文本   测试文本

测试文本

测试文本

[点击跳转链接](#)

这是一个被强调的内容

1.1 二级标题

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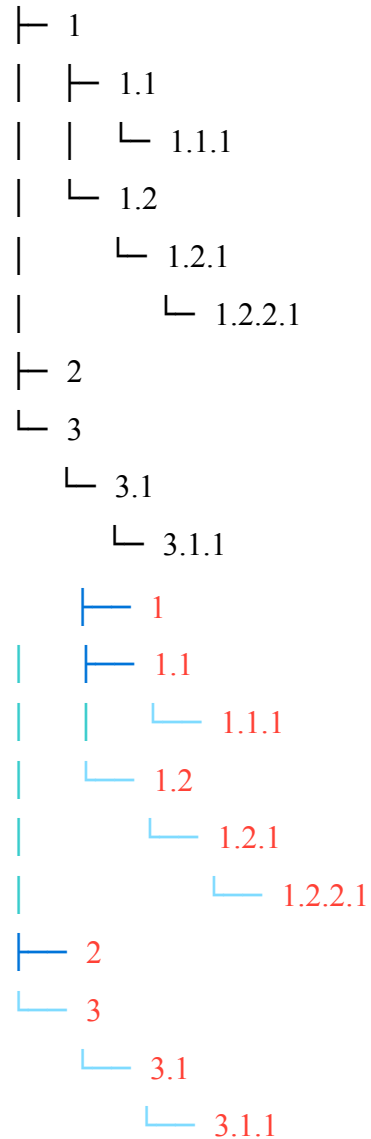
---

[1]测试脚注

图 1.1.1: 南开大学校徽

1.2 测试 treet

树状图：

```
├─ 1
│  ├─ 1.1
│  │  └─ 1.1.1
│  └─ 1.2
│     └─ 1.2.1
│        └─ 1.2.2.1
├─ 2
└─ 3
   └─ 3.1
      └─ 3.1.1
```

```
├─ 1
│  ├─ 1.1
│  │  └─ 1.1.1
│  └─ 1.2
│     └─ 1.2.1
│        └─ 1.2.2.1
├─ 2
└─ 3
   └─ 3.1
      └─ 3.1.1
```

1.3 测试 tblr

Country	Population (millions)	Area (1000 sq. mi.)	Pop. Density (per sq. mi.)
China	1313	9596	136.9
India	1095	3287	333.2
United States	298	9631	31.0

Country	Population (millions)	Area (1000 sq. mi.)	Pop. Density (per sq. mi.)
Indonesia	245	1919	127.9
Brazil	188	8511	22.1
Pakistan	165	803	206.2
Bangladesh	**147**	**144**	**1023.4**[a]
Russia	142	17075	8.4
Nigeria	131	923	142.7

[a]Highest value

1.4 测试 mannot

$$\underset{\substack{\text{Probability of}\\\text{state } i}}{\underline{p_i}} = \frac{\boxed{\exp\left(-\beta E_i\right)}}{\boxed{\sum_j \exp\left(-\beta E_j\right)}} \tag{1.1}$$

Inverse temperature · Boltzmann factor · Energy · Partition function

1.5 测试 badgery

Gray badge   Red badge   Yellow badge

Green badge   Blue badge   Purple badge   Click me
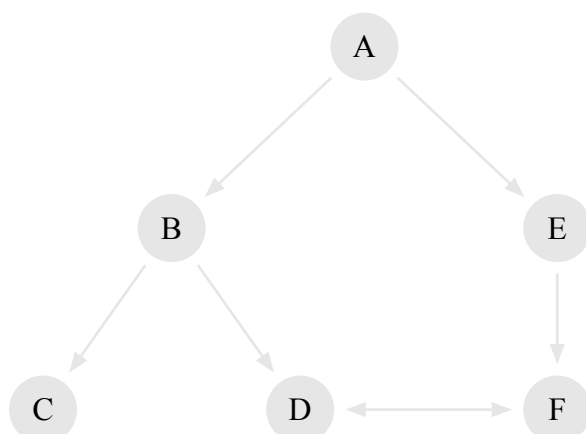
File 〉 New File...

Menu 〉 Sub-menu 〉 Sub-sub menu 〉 Action

1.6 测试 iconic-salmon-svg

This project was created by Bi0T1N. You can also find me on GitLab.

1.7 测试 cetz

1.8 测试 gentle

> **𝑖 Info**
>
> This is the info clue …

> **🔥 这是一个测试标题**
>
> Check out this cool package

> **？ Question**
>
> This is the info clue …

"This is the info clue …"

> **Example**
>
> This is the info clue …

> **📑 Abstract**
>
> This is the info clue …

> **☰ Task 1**
>
> This is the info clue …

> **✕ Error**
>
> This is the info clue …

> **⚠ Warning**
>
> This is the info clue …

> **✅ Success**
>
> This is the info clue …

> **🖼 Conclusion**
>
> This is the info clue …

> **！ Memorize**
>
> This is the info clue …

> We should run more tests!

1.9 测试 thmbox

Theorem 0.1

This is created using #theorem[...].

Proposition 0.2

This is created using #proposition[...].

Lemma 0.3

This is created using #lemma[...].

Corollary 0.4

This is created using #corollary[...].

Definition 0.5

This is created using #definition[...].

Example

This is created using #example[...].

Remark

This is created using #remark[...].

Exercise 0.6

This is created using #exercise[...].

Algorithm 0.7

This is created using #algorithm[...].

Claim

This is created using #claim[...].

Axiom 0.8

This is created using #axiom[...].

1.10   测试 note-me

ⓘ **Note**

Highlights information that users should take into account, even when skimming.

♀ **Tip**

Optional information to help a user be more successful.

▣ **Important**

Crucial information necessary for users to succeed.

⚠ **Warning**

Critical content demanding immediate user attention due to potential risks.

⊘ **Caution**

Negative potential consequences of an action.

⊘ **TODO**

Fix note-me package.

1.11   测试 colorbox

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1.12 测试 **showybox**

①

Red-ish showybox with separated sections!
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat.
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor.

②

Clairaut's theorem

Let $f : A \to \mathbb{R}$ with $A \subset \mathbb{R}^n$ an open set such that its cross derivatives of any order exist and are continuous in A. Then for any point $(a_1, a_2, ..., a_n) \in A$ it is true that

$$\frac{\partial^n f}{\partial x_i ... \partial x_j}(a_1, a_2, ..., a_n) = \frac{\partial^n f}{\partial x_j ... \partial x_i}(a_1, a_2, ..., a_n) \tag{1.2}$$

This will be useful every time you want to interchange partial derivatives in the future.

③

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④

Divergence theorem

Suppose V is a subset of $\mathbb{R}^n$ which is compact and has a piecewise smooth boundary S (also indicated with $\partial V = S$). If $\boldsymbol{F}$ is a continuously differentiable vector field defined on a neighborhood of V, then:

$$\iiint_V (\boldsymbol{\nabla} \cdot \boldsymbol{F})\,\mathrm{d}V = \oiint_S (\boldsymbol{F} \cdot \hat{\boldsymbol{n}})\,\mathrm{d}S \tag{1.3}$$

In the case of $n = 3$, V represents a volumne in three-dimensional space, and $\partial V = S$ its surface

⑤

Parent container

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

Child 1

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

Child 2

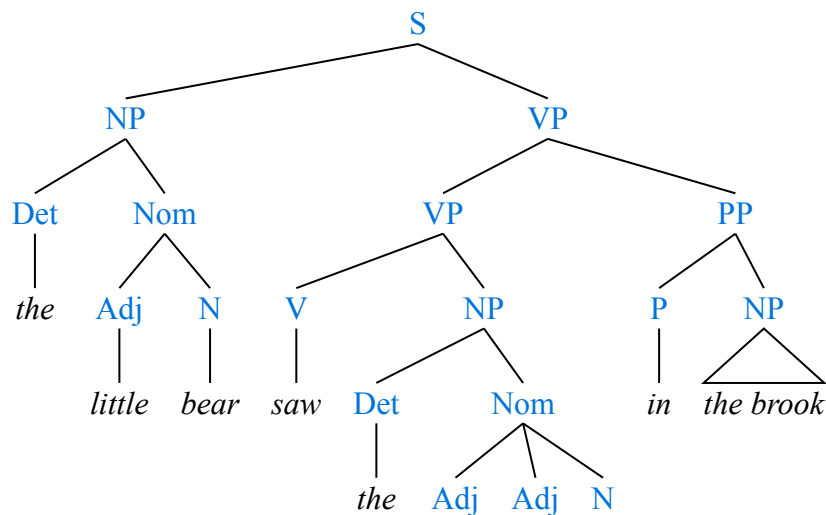Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

1.13 测试 **syntree**

图 1.13.2: Example of a syntax tree.

1.14 测试 codly

```rust
pub fn main() {
    println!("Hello, world!");
}
```

```cpp
void MergeSort(int arr[], int left, int right) {
  if(left >= right) return;
  int mid = (left + right) >> 1;
  MergeSort(arr, left, mid);
  MergeSort(arr, mid + 1, right);
  int i = left, j = mid + 1, k = 0, temp[right - left + 1];
  while(i <= mid && j <= right) {
    if(arr[i] <= arr[j]) temp[k++] = arr[i++];
    else temp[k++] = arr[j++];
  }
  while(i <= mid) temp[k++] = arr[i++];
  while(j <= right) temp[k++] = arr[j++];
  for(int i = 0; i < k; i++) arr[left + i] = temp[i];
}
```

1.15 测试 cheq

- ☐ Mercury
- ☑ Mars
- ☐ Jupiter
- ☑ Sun

1.16　测试 **pyrunner**

("john.doe@example.com", "jane.doe@example.net") 6

1.17　测试 **pinit**

A simple highlighted text.
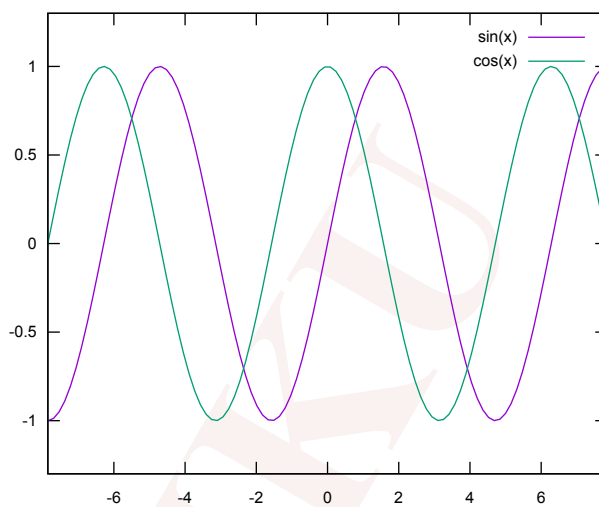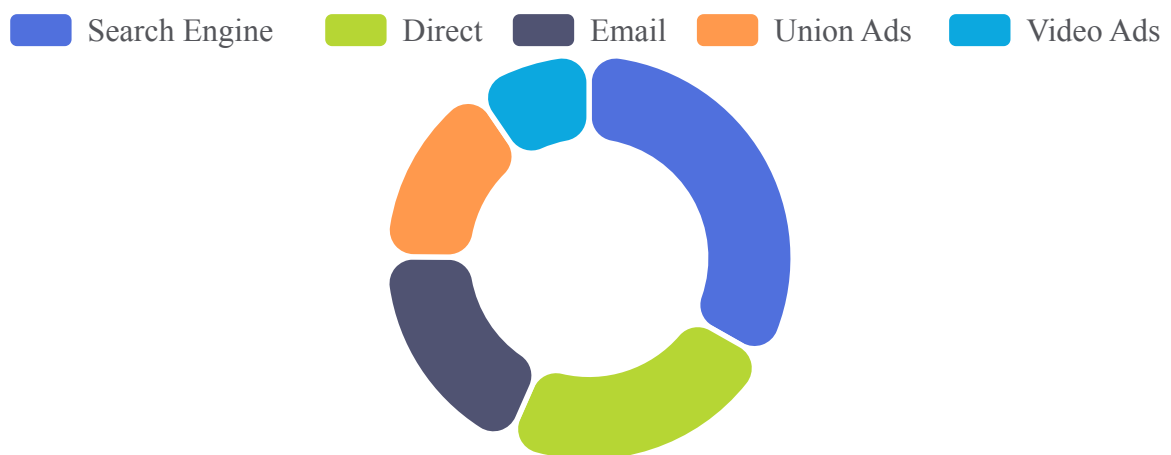
It is simple.

1.18　测试 **neoplot**

图 1.18.3: 测试图片

1.19　测试 **echarm**

1.20 测试 **physica**

$$A^T, \boldsymbol{\nabla} \times \boldsymbol{E} = -\frac{\partial \boldsymbol{B}}{\partial t}, \quad \Lambda^\mu{}_\nu = \begin{pmatrix} 1 & \\ & \mathbb{R} \end{pmatrix}, \quad f(x,y)\,\mathrm{d}x\,\mathrm{d}y, \quad \mathrm{d}^3\boldsymbol{x}\,\mathrm{d}y, \quad \Delta^2 x\,\Delta^2 y, \quad \frac{\mathrm{D}\varphi}{\mathrm{D}t} = \frac{\partial \varphi}{\partial t} + \boldsymbol{u}\boldsymbol{\nabla}\varphi$$

$$H(f) = \begin{bmatrix} \dfrac{\partial^2 f}{\partial x^2} & \dfrac{\partial^2 f}{\partial x \partial y} \\ \dfrac{\partial^2 f}{\partial y \partial x} & \dfrac{\partial^2 f}{\partial y^2} \end{bmatrix}, \quad \boldsymbol{v^a} = \sum_{i=1}^n \alpha_i \hat{\boldsymbol{u}}^i, \quad \left\{ (x,y) \;\middle|\; \frac{\partial^3 f}{\partial x^2 \partial y} + \frac{\partial^3 f}{\partial x \partial y^2} < \varepsilon \right\} \tag{1.4}$$

$$-\frac{1}{c^2}\frac{\partial^2}{\partial t^2}\psi + \nabla^2 \psi = \frac{m^2 c^2}{\hbar^2}\psi, \quad |n^{(1)}\rangle = \sum_{k \notin D} \frac{\langle k^{(0)}|V|n^{(0)}\rangle}{E_n^{(0)} - E_k^{(0)}}|k^{(0)}\rangle, \quad \int_V \mathrm{d}V \left(\frac{\partial \mathcal{L}}{\partial \varphi} - \partial_\mu \left(\frac{\partial \mathcal{L}}{\partial(\partial_\mu \varphi)} \right) \right) = 0$$
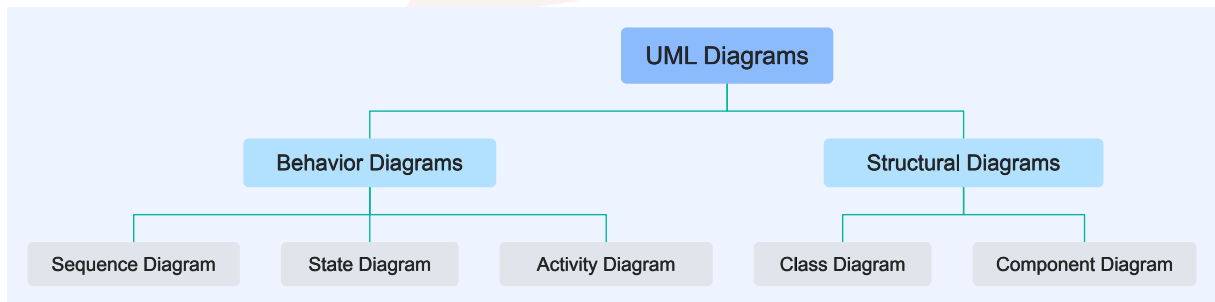
$$\mathrm{d}^2 s = -\left(1 - \frac{2GM}{r}\right)\mathrm{d}^2 t + \left(1 - \frac{2GM}{r}\right)^{-1}\mathrm{d}^2 r + r^2\,\mathrm{d}^2\Omega$$

clk: (clock waveform)

bus: (bus waveform)

$$\tag{1.5}$$

1.21 测试 **mitex**

$$f(x) = \int_{-\infty}^{\infty} \hat{f}(\xi)\, e^{2\pi i \xi x}\, d\xi \tag{1.6}$$

1.22 测试 **pintora**

1.23 测试 **unify**

$$(-1.328\,65 \pm 0.502\,73) \cdot 10^{-6} \tag{1.7}$$

$$\left(1.3^{+1.2}_{-0.3}\right) \cdot 10^3 \ \mathrm{erg\ cm^{-2}\ s^{-1}} \tag{1.8}$$

$$1{,}123'8 \cdot 10^{-2} - 3{,}086'8 \cdot 10^5 \tag{1.9}$$

$$(1 \text{ to } 2) \cdot 10^3\, \frac{\mathrm{m}}{\mathrm{s}^2} \tag{1.10}$$

1.24　测试 algo

```
Fib (n):
 1  if n < 0:
 2  │   return null
 3  if n = 0 or n = 1:
 4  │   return n
 5
 6  let x ← 0
 7  let y ← 1
 8  for i ← 2 to n − 1:  ▷ so dynamic!
 9  │   let z ← x + y
10  │   x ← y
11  │   y ← z
12
13  return x + y
```

Floyd-Warshall(V, E, w):

1　**Let** $\mathrm{dist}[u, v] \leftarrow \infty$ **for** u, v **in** V

2　**For** (u, v) **in** E:

3　│　$\mathrm{dist}[u, v] \leftarrow w(u, v)$　　　　　　　　　// edge weights

4　**For** v **in** V:

5　│　$\mathrm{dist}[v, v] \leftarrow 0$　　　　　　　　　// base case

6

7　**For** $k \leftarrow 1$ **to** $|V|$:

8　│　**For** $i \leftarrow 1$ **to** $|V|$:

9　│　│　**For** $j \leftarrow 1$ **to** $|V|$:

10　│　│　│　// if new path is shorter, reduce distance

11　│　│　│　**If** $\mathrm{dist}[i, j] > \mathrm{dist}[i, k] + \mathrm{dist}[k, j]$:

12　│　│　│　│　$\mathrm{dist}[i, j] \leftarrow \mathrm{dist}[i, k] + \mathrm{dist}[k, j]$

13

14　**Return** dist

1.25　测试 diagraph
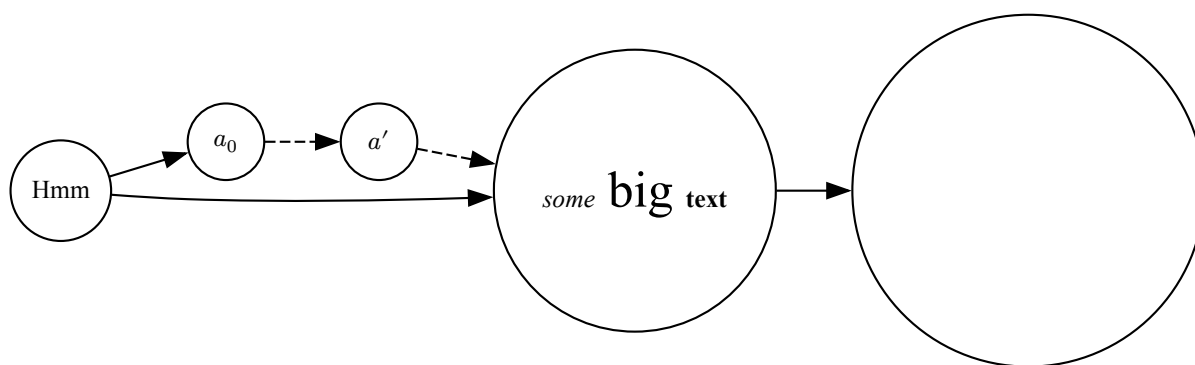
1.26 测试 xarrow

$$a \overset{\mathbb{Q},1+1^4}{\longleftarrow} b$$

$$c \overset{\text{very long boi}}{\rightsquigarrow} d$$

$$\frac{c}{a \overset{\text{NP} \overset{*}{\sum}}{\twoheadrightarrow} b \times 4} \tag{1.12}$$

测试参考文献:

文献 1 的内容[1]

文献 2 的内容[2]

参考文献

[1] R. Impagliazzo, R. Paturi, and F. Zane, "Which problems have strongly exponential complexity?," *Journal of Computer and System Sciences*, vol. 63, no. 4, pp. 512–530, 2001.

[2] S. Burckhardt *et al.*, "It's Alive! Continuous Feedback in UI Programming," *SIGPLAN Not.*, vol. 48, no. 6, pp. 95–104, June 2013, doi: 10.1145/2499370.2462170.