

アカウント登録をお願いします

QRコード or GoogleChatのスペースにリンクあり



The screenshot shows the Google Developer Student Clubs website for the National Institute of Technology (Kosen), Kumamoto College. The page features a green globe graphic and the college's name in large white text. Below the globe are social media icons for Twitter, LinkedIn, Instagram, YouTube, and Email. A prominent blue button at the bottom right is labeled "Join us" and is outlined with a red border, indicating it is the target for account registration. The top navigation bar includes links for "About GDSC", "Chapters", "Upcoming events", a search icon, and a "Log in" button.

Intro to Server-side Development

Speakers

Takahito Iwano / Security Lead

Masaki Iwai / Backend Lead



Google Developer Student Clubs
National Institute of Technology, Kumamoto C.

```
= filterByOrg ? stud  
tus = filterByStatus  
& matchStatus) {
```



RSVP

登録をお願いします

RSVP for this event now!

RSVP

📍 In-person

Registration ends in 19 hours

RSVP



About GDSC

熊本高専チャプターの紹介

日本初の高専チャプター



About GDSC

活動内容

- 実践的なワークショップ
- スピーカーセッション
- 勉強会
 - Android, ML, Web など
- ハッカソン
- Solution Challenge



Content of the workshop

Intro to Server-side Development

1. Introduction
2. Remote connection to Raspberry Pi
3. Run Web server
4. Conclusion

Handouts : <https://github.com/gdsc-nitk/hands-on>



Introduction

section 1

```
function filterStudies({ studies, filterByOrg = false, filterByCategory = false }) {
  return studies.filter(study => {
    if (filterByCategory) {
      return study.categories.some(category => category.id === filterByCategory);
    }
    if (filterByOrg) {
      return study.organizations.some(organization => organization.id === filterByOrg);
    }
    return true;
  });
}
```

Introduction



Introduction

Webナーバ

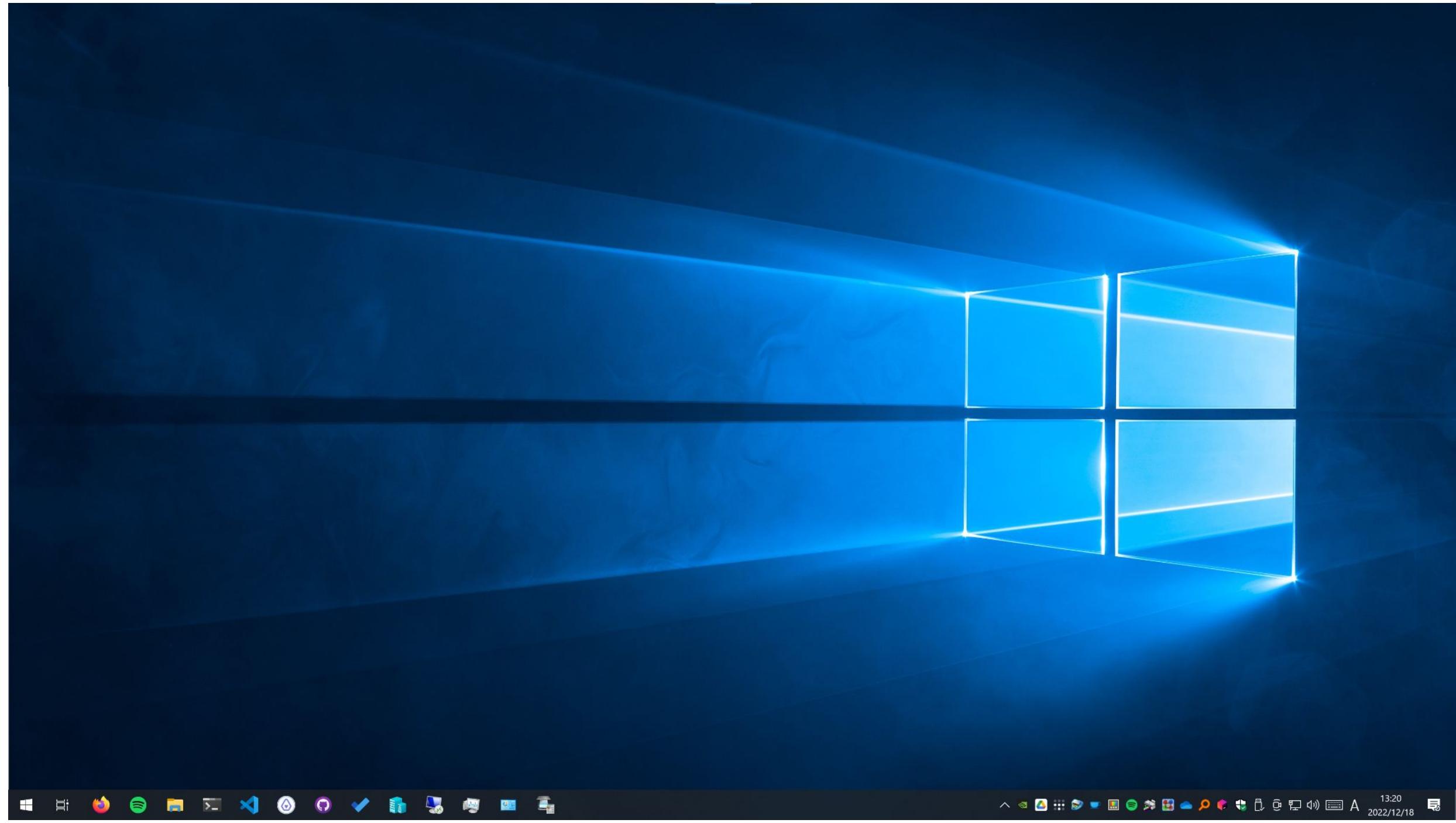


Remote connection to Raspberry Pi

section 2

```
function filterStudies({ studies, filterByOrg = false, filterByStudy = false }) {
  return studies.filter(study => {
    if (filterByOrg) {
      return study.orgs.length > 0;
    }
    if (filterByStudy) {
      return study.id === filterByStudy;
    }
    return true;
  });
}
```

Remote connection to Raspberry Pi



GUI



Remote connection to Raspberry Pi

```
hi18iwano@garden: ~
Linux snorlax 5.15.79.1-microsoft-standard-WSL2 x86_64
13:23:18 up 0 min, 0 users, load average: 0.00, 0.00, 0.00
~ ➔ ssh garden
Sun Dec 18 13:23:32 2022
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.4.0-131-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

No mail.

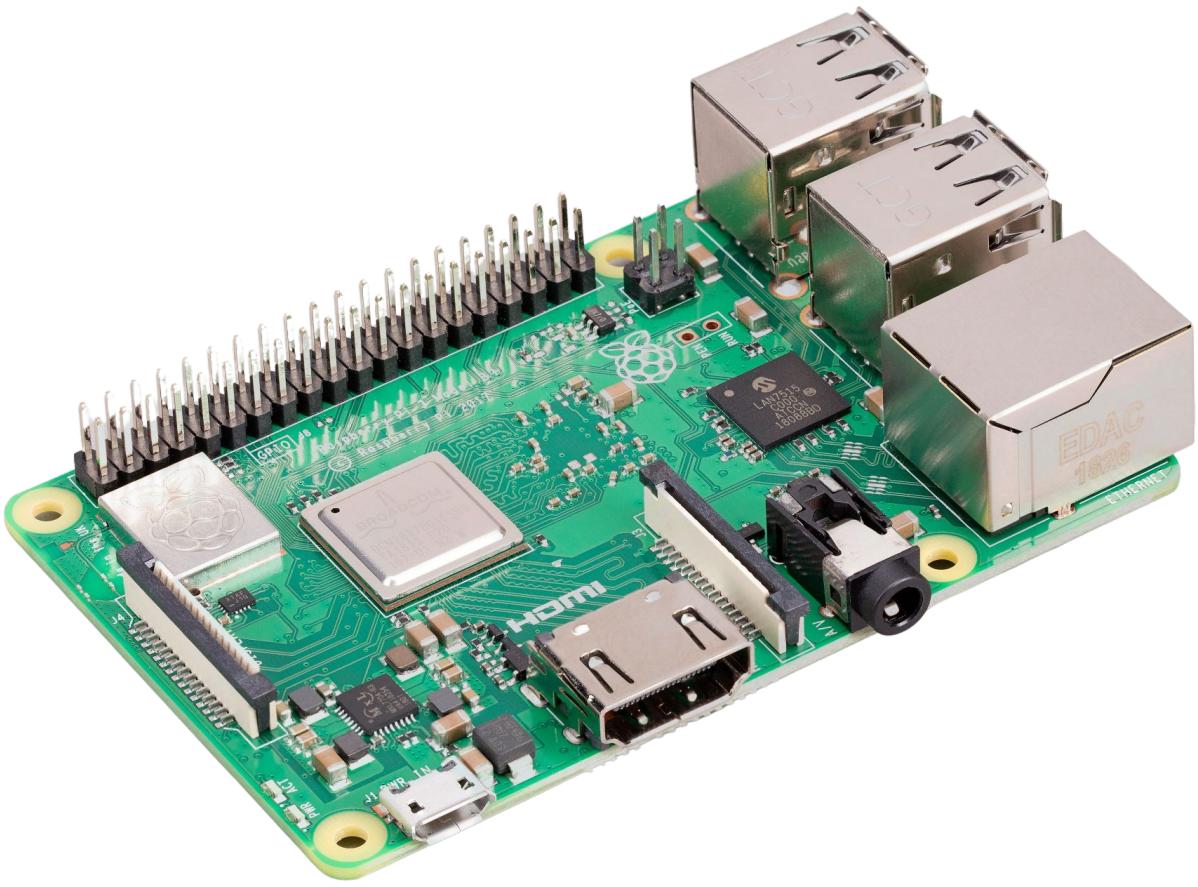
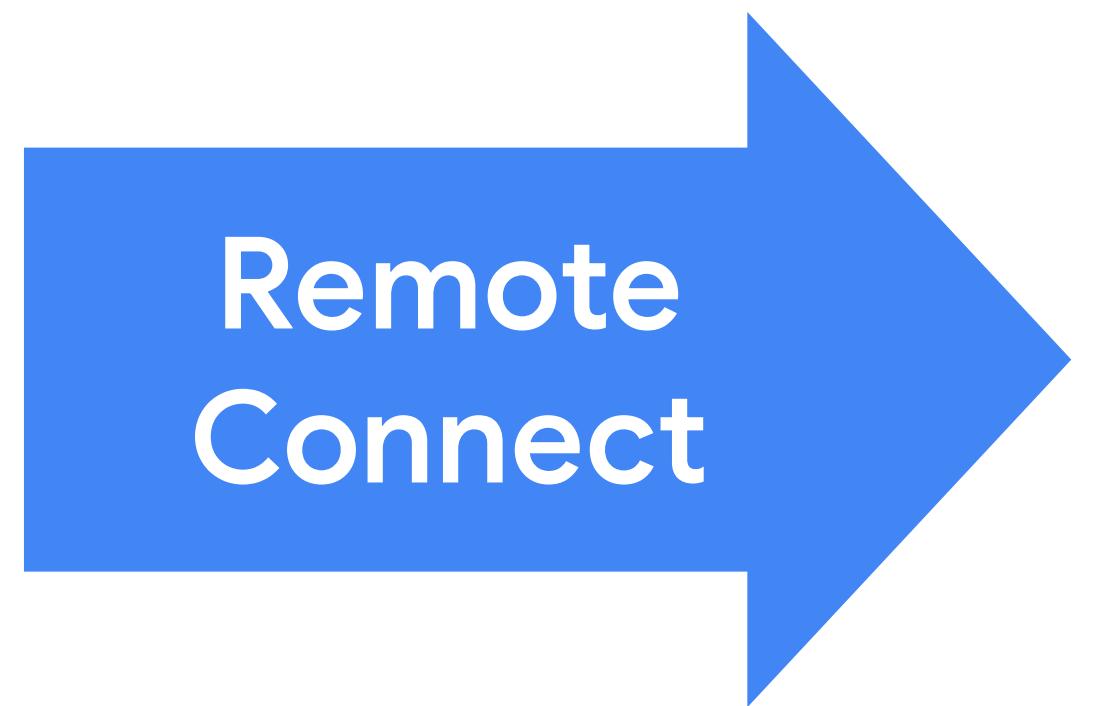
Last login: Sun Dec 18 10:31:04 2022 from 202.23.193.126
hi18iwano@garden:~$ vim hello.c
hi18iwano@garden:~$ gcc hello.c
hi18iwano@garden:~$ ./a.out
Hello World!
hi18iwano@garden:~$ |
```

CUI



Remote connection to Raspberry Pi

この章のゴール



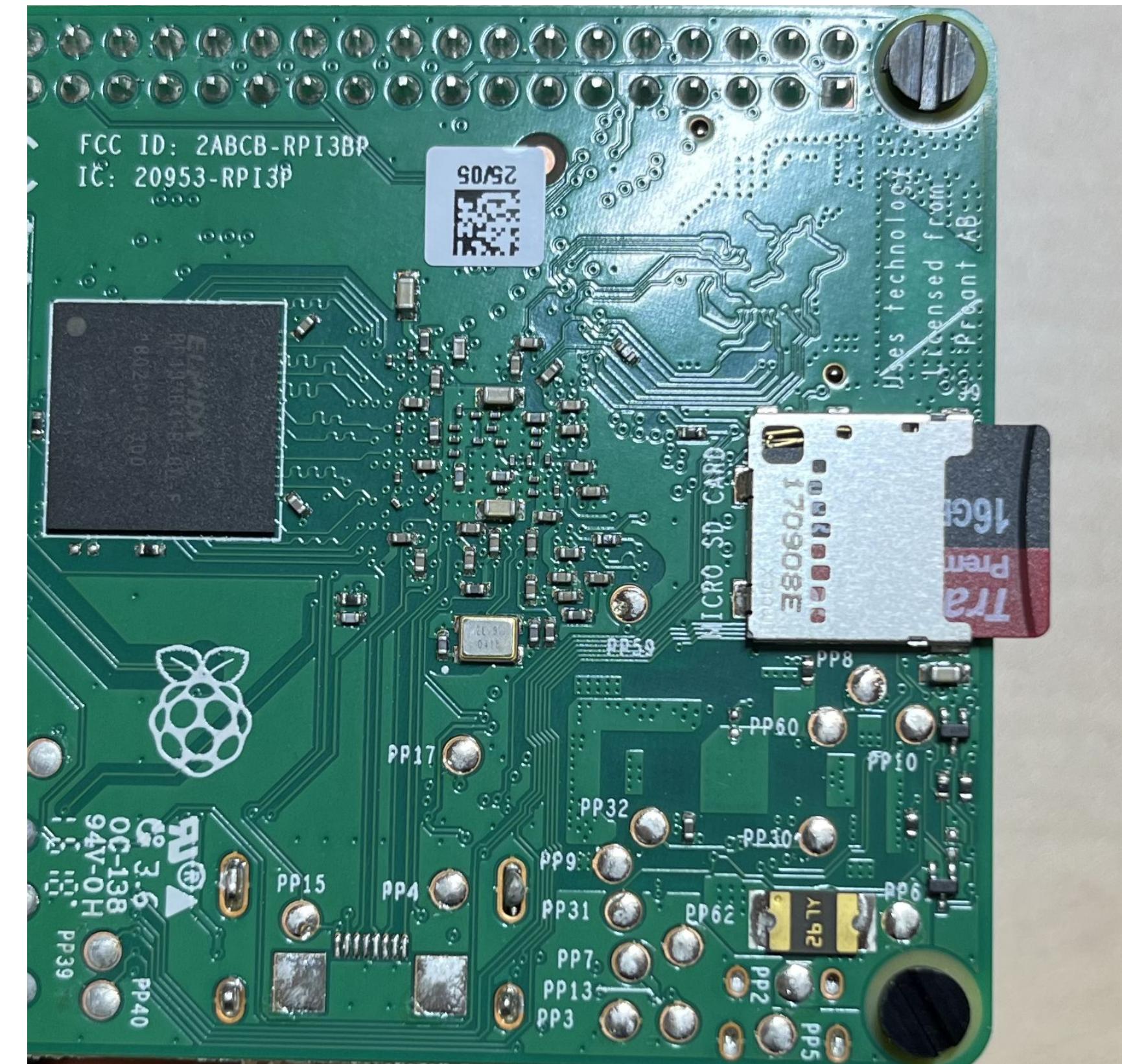
Remote connection to Raspberry Pi

Raspberry Piのセットアップ



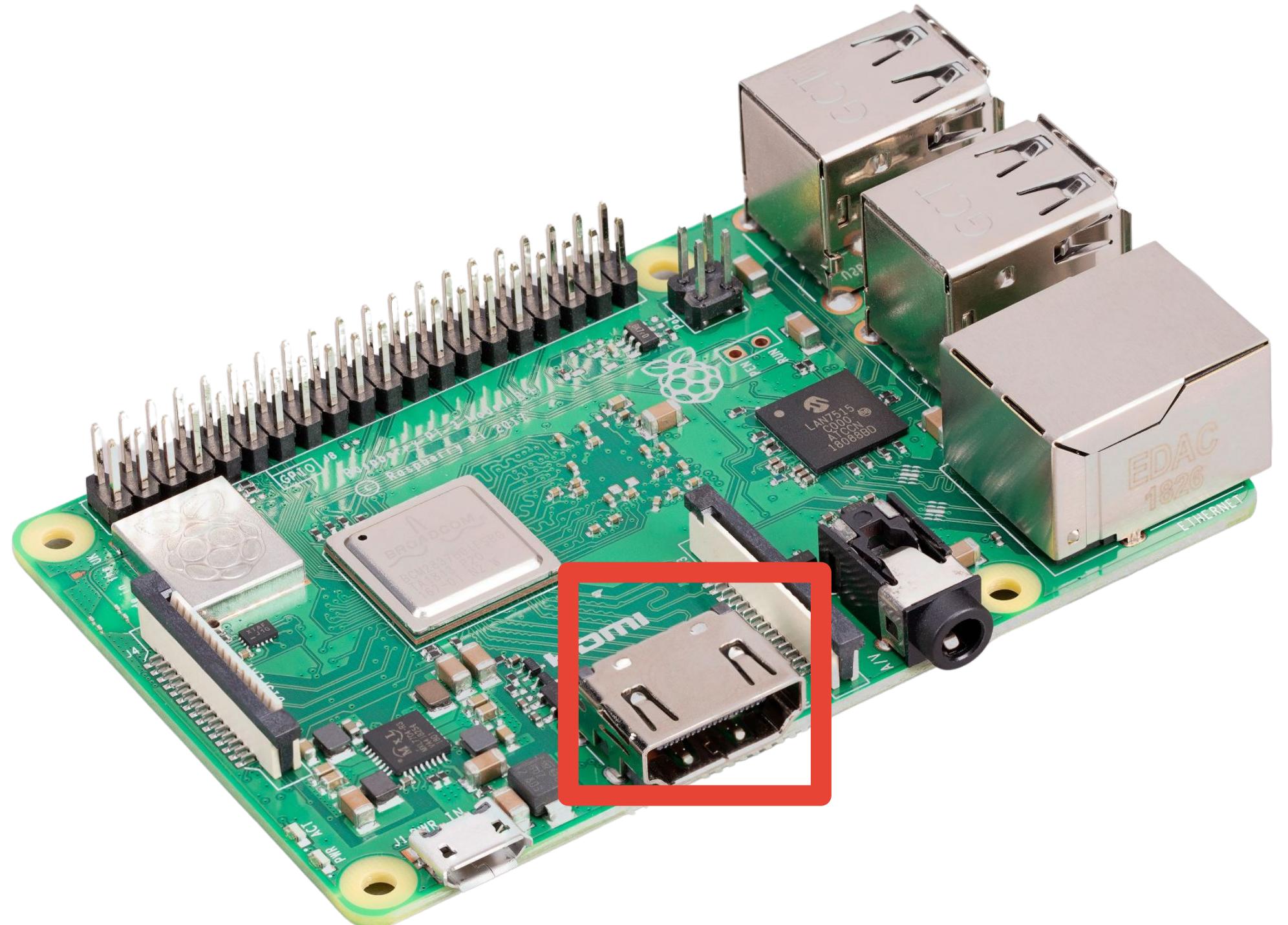
Remote connection to Raspberry Pi

Raspberry Piのセットアップ



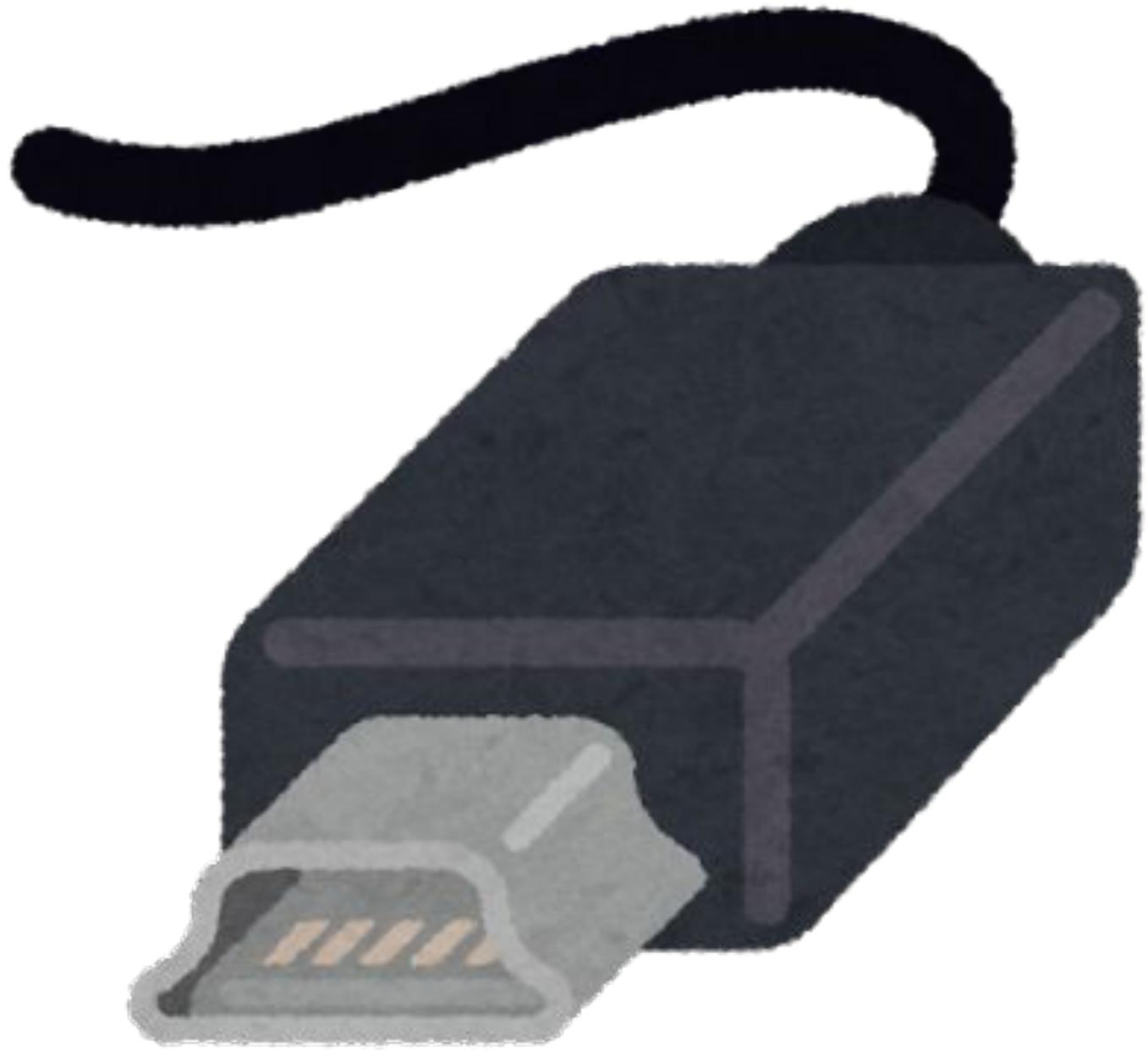
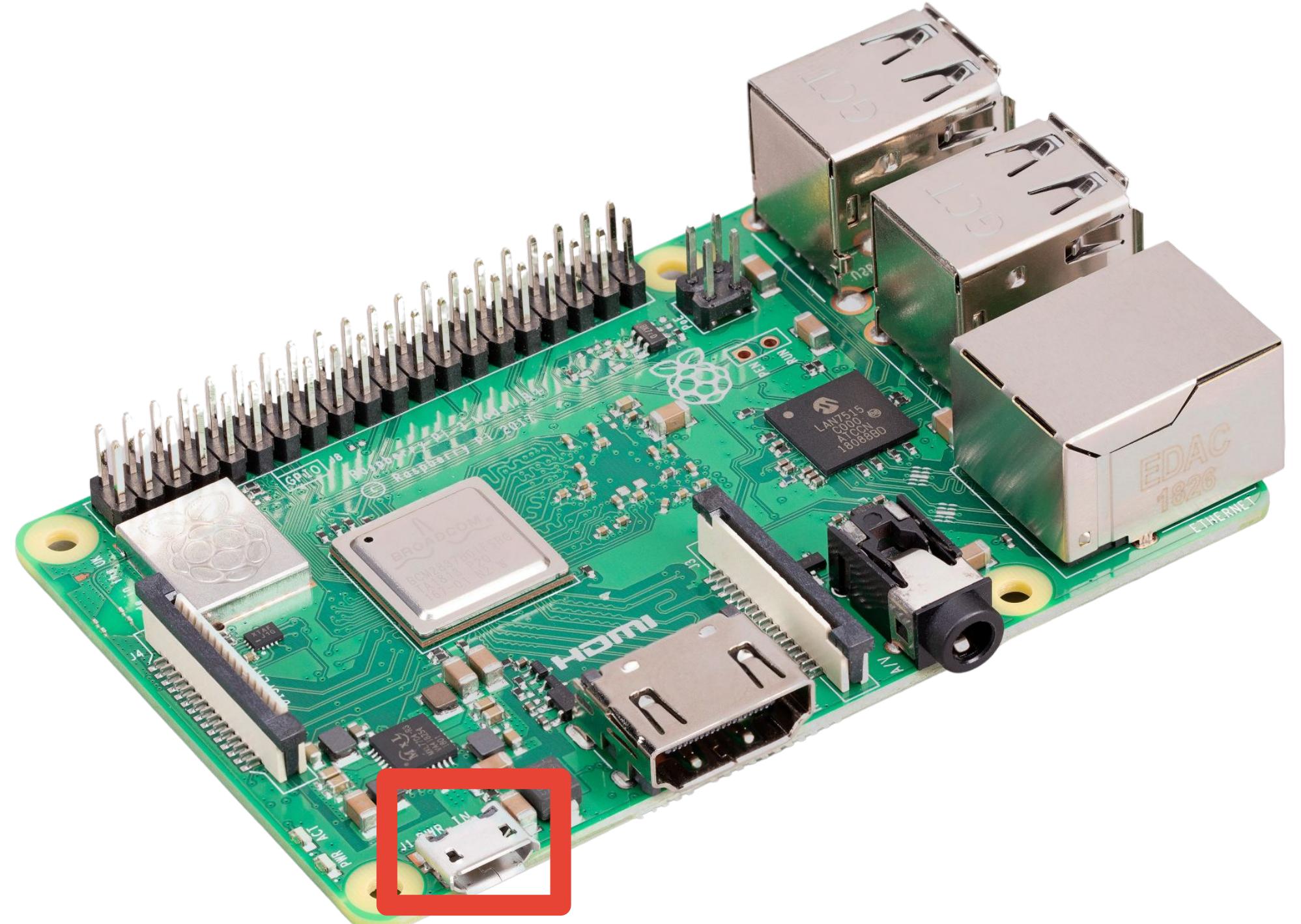
Remote connection to Raspberry Pi

Raspberry Piのセットアップ



Remote connection to Raspberry Pi

Raspberry Piのセットアップ



Remote connection to Raspberry Pi

Raspberry Piのセットアップ



Remote connection to Raspberry Pi

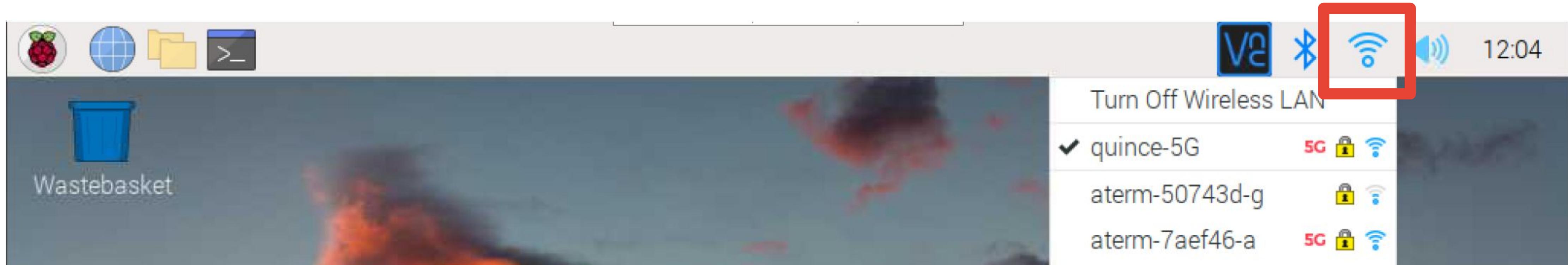
IPアドレスを調べる

IPアドレス



Remote connection to Raspberry Pi

IPアドレスを調べる



SSID

raspberry-lecture

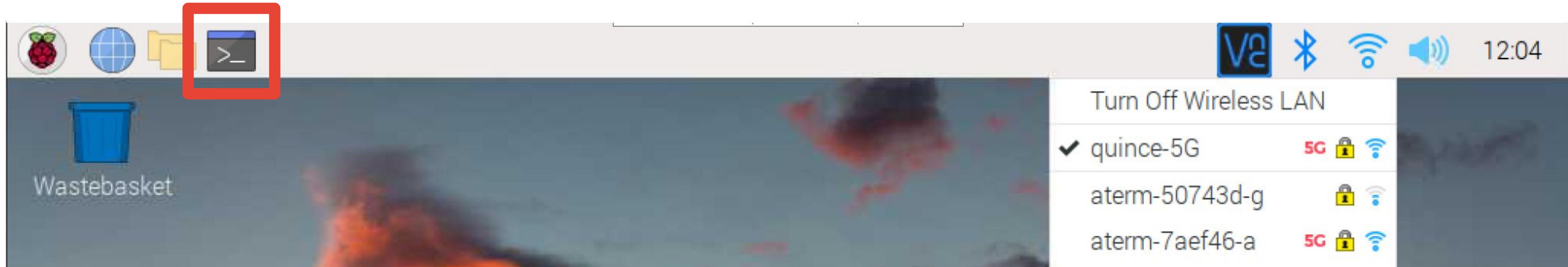
PW

razupaikoushuukai



Remote connection to Raspberry Pi

IPアドレスを調べる



Terminal

Remote connection to Raspberry Pi

IPアドレスを調べる

```
$ ip a
```



Remote connection to Raspberry Pi

IPアドレスを調べる

```
3: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast  
state UP group default qlen 1000  
link/ether b8:27:eb:bf:22:36 brd ff:ff:ff:ff:ff:ff  
inet 192.168.XXX.XXX/24 brd 192.168.XXX.255 scope global dynamic  
noreferrer wlan0
```

{Raspberry PiのIPアドレス}



Remote connection to Raspberry Pi

疎通を確認

SSID

raspberry-lecture

PW

razupaikoushuukai



Remote connection to Raspberry Pi

疎通を確認



PowerShell



ターミナル



Remote connection to Raspberry Pi

疎通を確認

```
$ ping {Raspberry PiのIPアドレス}
```



Remote connection to Raspberry Pi

リモート接続しよう

```
$ ssh pi@{Raspberry PiのIPアドレス}
```

password : gdsc4956



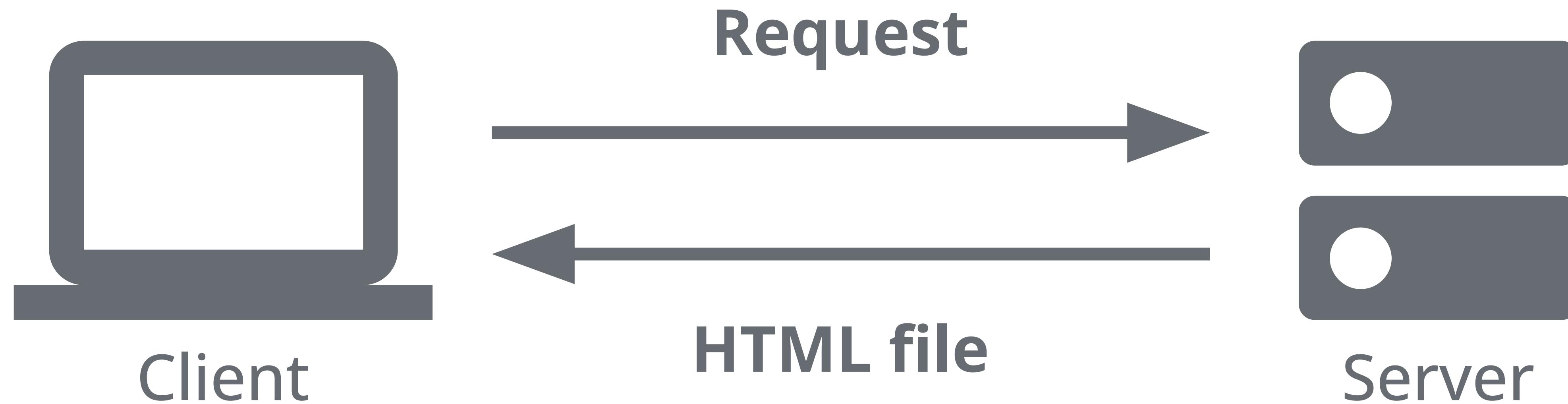
Run Web server

section 3

```
function filterStudies({ studies, filterByOrg = false, filterByStudyType = false }) {
  return studies.filter(study => {
    if (filterByOrg) {
      const org = study.organizations[0];
      if (!org || !org.id) {
        return false;
      }
      if (filterByOrg === org.id) {
        return true;
      }
    }
    if (filterByStudyType) {
      if (!study.type) {
        return false;
      }
      if (filterByStudyType === study.type) {
        return true;
      }
    }
    return true;
  });
}
```

Run Web server

Webサーバについて



Run Web server

[ソースのダウンロード](#)

```
$ wget {補助資料に示したURL}
```



Run Web server

Webページを構成する技術

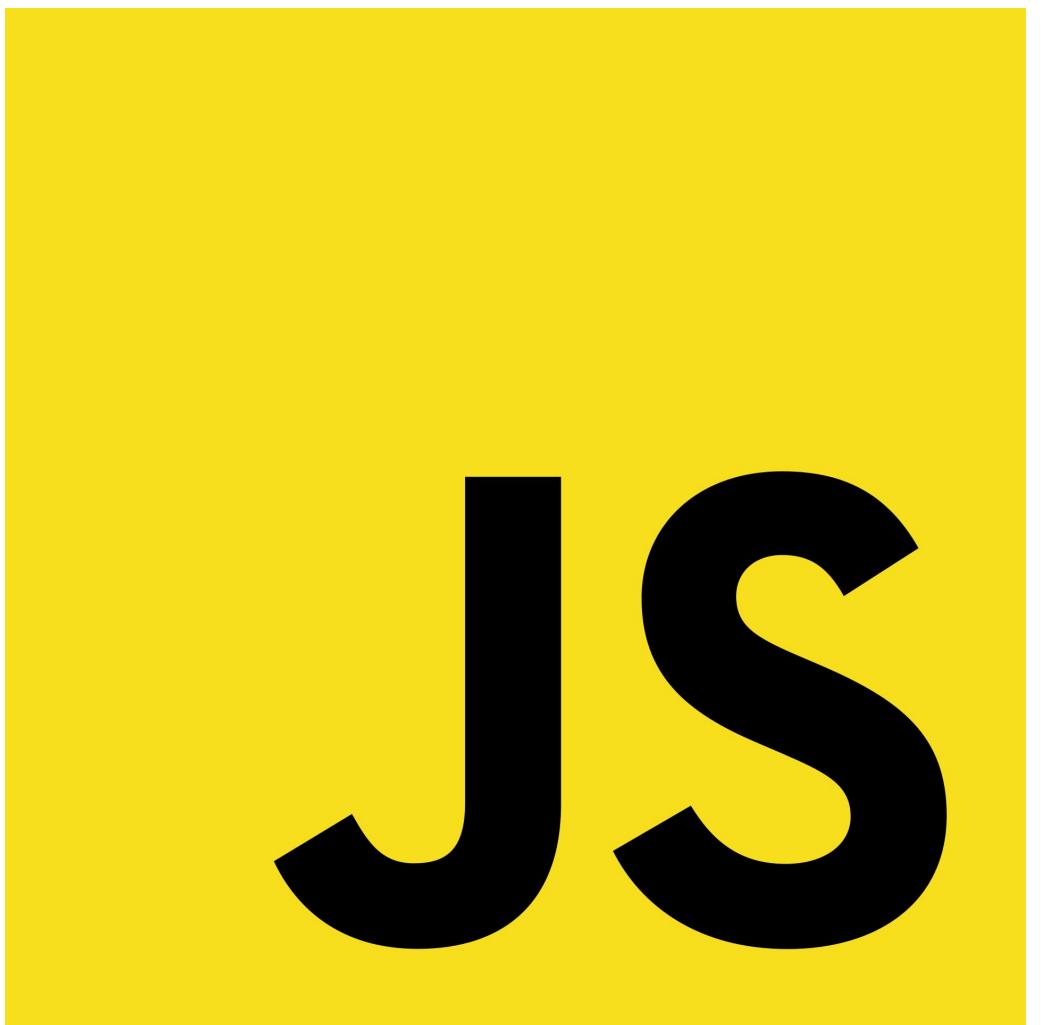
HTML



CSS



JS



Run Web server

Webサーバのインストール

```
$ sudo apt update
```



Run Web server

Webサーバのインストール

```
$ sudo apt install nginx -y
```



Run Web server

Webサーバのインストール

```
$ systemctl status nginx
```



Run Web server

Webサーバのインストール

- nginx.service - A high performance web server and a reverse proxy server
Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
Active: active (running) since Mon 2022-12-12 12:00:08 JST; 2h 21min ago



Run Web server

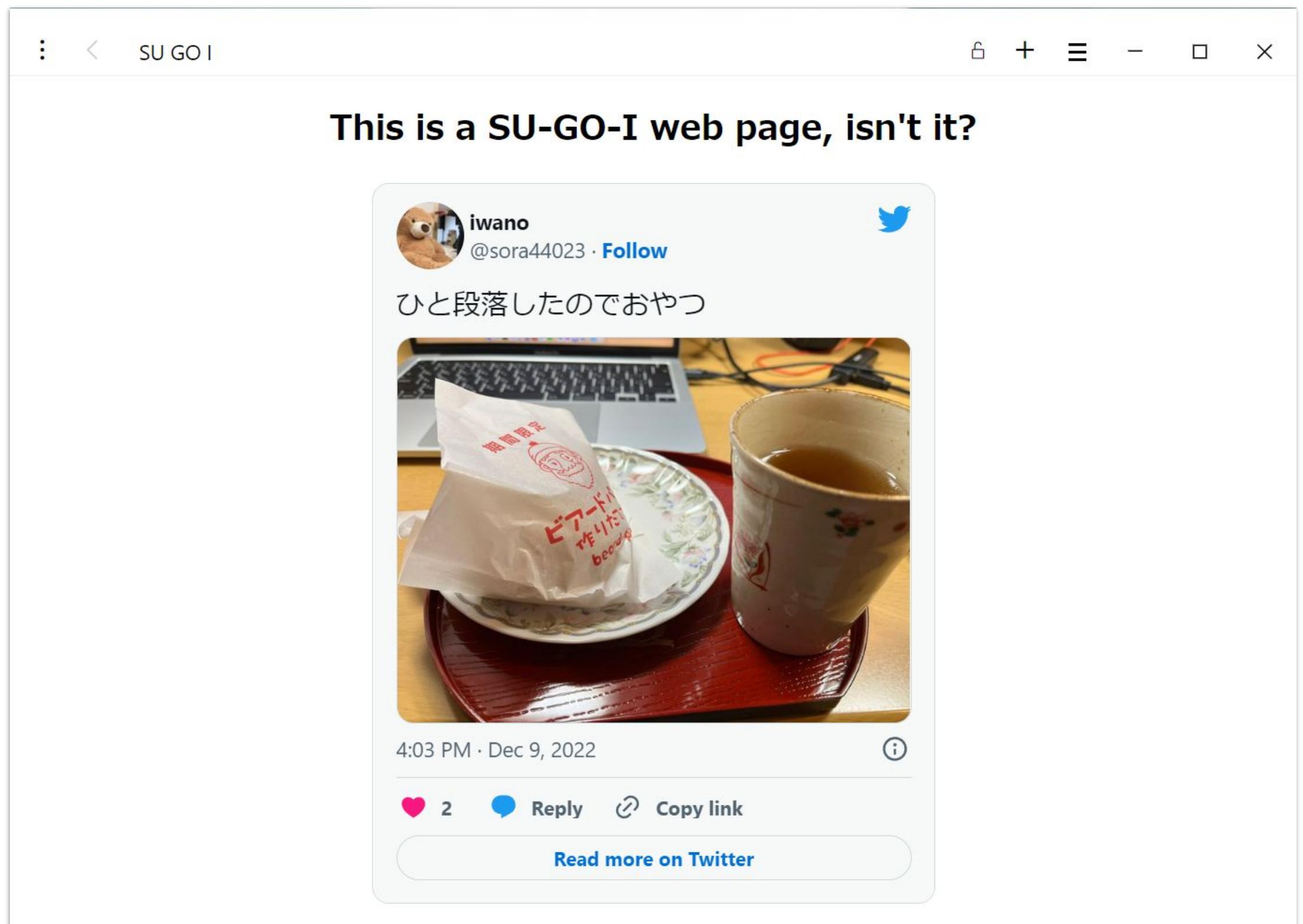
[Webサーバのインストール](#)

```
$ sudo cp index.html /var/www/html/
```



Run Web server

ブラウザで実際にアクセスしてみる



Run Web server

オプション講座

- セキュリティコース
- ネットワークコース
- Web開発コース



Conclusion

section 4

```
function filterStudies({ studies, filterByOrg = false, filterByCategory = false }) {
  return studies.filter(study => {
    if (filterByCategory) {
      return study.categories.some(category => category.id === filterByCategory);
    }
    if (filterByOrg) {
      return study.organizations.some(organization => organization.id === filterByOrg);
    }
    return true;
  });
}
```

Conclusion

情報管理委員会からのご案内

- 本講座はレベル1
- レベル2
 - Linuxのユーザについて
 - ネットワーク
 - Webシステムの3要素
 - セキュリティ
- レベル3
 - 学生ポータルサイトの運営に必要な知識
 - 情報管理委員会が保守しているサーバについて



帰宅前にやってほしいこと

GoogleChatのスペースにリンクを貼ります

- ラズパイの片づけ
- アンケートへの回答

終わった方はCore Memberに一言声をかけてください。
(Core Memberの方はSDカードの回収よろしくお願いします)