

# Basic usage of Alibaba Cloud Server

## 1. Why choose Alibaba Cloud Server?

Alibaba Cloud is a leading global cloud computing service provider, providing cloud computing, big data, artificial intelligence, security, enterprise applications, digital entertainment and other services to millions of customers in more than 200 countries and regions around the world.

Alibaba Cloud's servers are stable in performance and low in price, making them the first choice for many beginners. In particular, Alibaba Cloud's university plan allows users to receive cloud servers for free, which is very suitable for students. For new users, Alibaba Cloud also provides a free trial opportunity, allowing users to use cloud servers for free for one year.

## 2. Obtaining the Alibaba Cloud University Plan

### 2.1. Introduction to the University Program

The general benefits for college students are open to all Chinese college students, including students enrolled in colleges and universities at the junior college, undergraduate, master's, doctoral, and postgraduate levels in mainland China, Hong Kong, Macao and Taiwan. On this basis, students from Alibaba Cloud partner universities can enjoy an additional 30% off exclusive benefits.

### 2.2. Application for University Student Program

Application link: <https://university.aliyun.com/mobile?clubTaskBiz=subTask..11337012..10212..&userCode=1h9ofupt>

1. Benefit 1: Chinese college students who have passed the student certification can receive a 300 yuan no-threshold coupon.
2. Benefit 2: Chinese university students who have passed the student certification and whose universities are Alibaba Cloud partner universities can receive a 30% discount on Alibaba Cloud

public cloud products (excluding special products) on top of a 300 yuan no-threshold coupon, with the original order price not exceeding 5,000 yuan.

The current partner universities include: Tsinghua University, Peking University, Zhejiang University, Shanghai Jiao Tong University, University of Science and Technology of China, South China University of Technology and Hong Kong University of Science and Technology (Guangzhou). More universities are being negotiated, so stay tuned!

**助力高校师生云上“创世界”**

面向高校学生 面向高校教师

**高校学生权益**

面向中国高校学生，立即领用权益开启云上实践 [活动规则](#)

**高校学生通用权益**

完成高校学生认证即可领取，其中港澳台地区近期开启

**立即领取**

**¥ 300**

无门槛优惠券

适用产品范围：阿里云全量公共云产品（特殊商品除外）  
使用说明：自领取之日起，1年内有...

**合作高校学生专属权益**

合作高校 学生完成学生认证即可领取，可与300元优惠券叠加使用

**立即领取**

**3折**

折扣优惠

适用产品范围：阿里云全量公共云产品（特殊商品除外），订单原价金...  
使用说明：自领用之日起，1年内有...

Click on the Get It Now button in the picture, and scan the QR code with your real-name authenticated Alipay account to log in and verify.

请扫码完成学生验证



## 2.3. Rights and interests of college students and teachers

The user is a teacher (including postdoctoral fellows) of the cooperating university and has completed identity authentication in accordance with the activity requirements.

The current partner universities include: Tsinghua University, Peking University, Zhejiang University, Shanghai Jiao Tong University, University of Science and Technology of China, South China University of Technology and Hong Kong University of Science and Technology (Guangzhou). More universities are being negotiated, so stay tuned!

- Alibaba Cloud offers an exclusive 50% discount on all public cloud products (excluding special products) and sets up exclusive service channels to accelerate scientific research and teaching.

### 助力高校师生云上“创世界”

“云工开物”取自中国古代科技史上里程碑式的科学著作《天工开物》，反映了前辈们不懈的科学探索，和不空想、要实干的魄力。云计算作为推动科研新范式的关键引擎，将助力更多科学梦想成为现实。“云工开物”将倾力支持高校教师云上科研提速，取得有世界级影响力的成果；助力高校学生在云上探索更多可能性，创造出更精彩的未来世界。

面向高校学生

面向高校教师

### 高校教师专属权益

阿里云全量公共云产品（特殊商品除外）5折专属优惠，设置专属服务通道，为科研及教学加速。[活动规则](#)

#### 合作高校教师专属权益

阿里云合作高校 教师(含博士后)，提交信息通过后，即可领取

立即领取

5折

折扣优惠

适用产品范围：阿里云全量公共云产品（特殊商品除外），订单原价封...

使用说明：自领用之日起，1年内有...

Note: It is best to purchase the product only after confirming that the coupon has been received;  
用户中心-卡券管理-优惠券管理 check the coupon information.

<https://developer.aliyun.com/plan/student>

### 3. New users can receive a trial of the cloud server

Application link: <https://free.aliyun.com/?crowd=personal>. I recommend you to apply here 云服务器 ECS . The free quota is 280 yuan per month and is valid for 3 months. The configuration is as follows:

- e series 2 cores 2GB or 2 cores 4GB (200 yuan free quota per month);
- 80 yuan free quota for public network traffic per month (can be used to deduct 100GB of domestic traffic)

The screenshot shows the Alibaba Cloud Free Trial landing page. At the top, there's a banner with '免费试用' (Free Trial) and links for '开发者, 云上建' (Developer, Build on Cloud) and '玩转Leanote个人云笔记' (Play with Leanote Personal Cloud Notebook). Below the banner, there's a search bar and a sidebar with filters for '类目筛选' (Category Filter), '清除筛选' (Clear Filter), '可试用人群' (Testable Audience), and '产品类别' (Product Category). The main content area displays several service offerings with their respective free quotas and trial periods:

- 云服务器 ECS**: 额度3个月内有效 (Valid for 3 months). This item is highlighted with a red border.
- 函数计算 FC**: 额度3个月内有效 (Valid for 3 months).
- 无影云电脑 (专业版)**: 额度3个月内有效 (Valid for 3 months).
- 180元额度 3个月**: 额度3个月内有效 (Valid for 3 months).
- 云原生可观测**: 不限时长 (Unlimited time).
- 机器学习平台**: 额度3个月内有效 (Valid for 3 months).

Each service listing includes a '试用教程' (Tutorial) button and a '立即试用' (Start Trial) button.

### 4. Guidelines for Creating a Cloud Server

Here we 云服务器 ECS take selection as an example for configuration. Select the minimum configuration for system selection Ubuntu .

# 云服务器 ECS

产品配置	<p>2核(vCPU) 2 GiB</p> <p>规格族 经济型e系列 系统盘 40 GiB ESSD Entry 云盘</p>	<p>2核(vCPU) 4 GiB</p> <p>规格族 经济型e系列 系统盘 40 GiB ESSD Entry 云盘</p>		
可试用台数	<p>1台</p>	<p>2台</p>	<p>3台</p>	<p>4台</p>
试用额度	<p>试用有效期 3个月</p> <p>免费范围 每月可免费使用约1623小时 最高免费额度：¥200/月 且 ¥1/小时 北京、杭州、广州、成都、乌兰察布</p> <p>超额情况 超出免费额度部分需自付 <a href="#">按量收费&gt;</a></p>			
基于节省计划的免费试用版本支持，灵活创建和弹性调整试用配置				
操作系统	<p>Alibaba Cloud Linux 3.2104 LTS 64位</p>	<p>Windows Server 2022 数据中心版 64位中文版</p>	<p>Ubuntu 22.04 64位 UEFI版</p>	<p>CentOS 7.9 64位 SCC版</p>
预装应用	<p>宝塔Linux面板 Linux版本， 可一键部署LAMP/LNM</p> <p>WordPress 包含Alibaba Cloud Linux3+Nginx+</p>			

During the trial, fill in "Automatically release the instance" in the expiration release setting, so

that no fees will be incurred after the expiration.

## 云服务器 ECS

X

到期释放设置 ①

现在设置。试用3个月到期前1小时，自动释放实例，**ECS实例释放后数据不保留**  
如您试用过程中想取消释放，可登录控制台“释放设置-取消释放”。

暂不设置。试用到期前再设置释放，**请注意试用到期未释放可能产生欠费**  
系统将在您的试用到期前，通过短信、邮件、控制台提醒您操作释放。

公网流量

流量试用额度

试用有效期	免费额度	超额情况
3个月	80元/月	超出免费额度部分需自付
	每月可抵扣100GB国内地域流量	<a href="#">CDT产品计费&gt;</a>

基于云数据传输CDT支持免费额度，适用于ECS、传统型负载均衡CLB等多个产品，[CDT支持产品>](#)

注意事项

1.如果免费额度当月未用完，额度会在月末清零，不能延期到下个月。首月开通试用时长不满1个月的，额度仍可继续使用，[图文说明>](#)

2.当前试用产品不满足国内ICP备案要求，如需备案请前往购买页选购包年包月实例，[立即前往>](#)

协议

我同意，开通免费试用，即3个月免费节省计划，用于抵扣页面指定配置的按量云服务器ECS及ECS访问公网产生的流量

我同意，《云服务器试用须知》、《云服务器 ECS 服务条款》、《云数据传输CDT服务协议》

台数 1 台

**立即试用**

After the creation is complete, click Trial or [Link](#) to see the instance we just created.

概览 资源报表 ECS使用成熟度评估与洞察

我的资源

云服务器	运行中	即将过期	已过期	近期创建	快照
1	1	0	0	1	<a href="#">使用快照备份</a>

[创建实例](#) [迁移上云](#) 可按ID、名称、IP等属性模糊搜索云服务器，多个关键字用英文逗号 (,...)

i-bp1j9nnu2lbf31jcl6u 运行中 (2核(vCPU) 2GiB) [远程连接](#) [重启](#) [停止](#) [启动](#)

名称 i-bp1j9nnu2lbf31jcl6uZ 地域 华东1 (杭州) CPU使用率 1.447% 内存使用率 安装插件 云盘使用率 安装插件

实例与镜像 实例 镜像 网络与安全 安全组

Click Remote Connection and click Login Now.

## 通过Workbench远程连接

默认

使用场景：适用于实例处于运行中且操作系统已经运行起来的场景下登录实例。

产品优点：在远程连接时，支持复制粘贴文本、多操作系统用户登录同一台实例、可视化查看系统文件资源，高效快捷。

立即登录[展开其他登录方式 ▼](#)

## 通过阿里云客户端连接实例

新

帮助管理云帐号、查看与连接服务器、免密码连接、全局搜索实例及远程连接。

[查看文档介绍](#)[立即下载Mac arm64版](#)[立即下载Mac x64版](#)取消问题排查

The default password is root;

登录实例

简体中文 ? X

云服务器ECS 弹性容器ECI

\* 实例: ECS-00000000 华东1(杭州) ?

网络连接: 网 运维安全中心(原运维盾PAM) 管理 ?

认证方式:  密码认证 ?  SSH密钥认证 ?  凭据认证 ?  临时SSH密钥认证 ?

\* 用户名: root

\* 密码: · ·

【运维安全中心（堡垒机）】专业、安全的运维管控审计平台 低至30元每月

云上ECS统一、安全运维平台，集中管理资产权限，全程监控操作行为，实时审计、录像还原，保障云端运维身份可鉴别、权限可管控、风险可阻断、行为可追溯。

[立即购买](#) [查看产品介绍](#)

重置密码 完整选项 ▾ 取消 确定

if you are not allowed to log in, follow [the link](#) to modify the server configuration.

[Simple solution: On the cloud server management console page, click the three dots near

'Remote Connection' and select Reset Instance Password. Log in again and you are done. ]

The screenshot shows the Alibaba Cloud console interface for managing a cloud instance. At the top, there are details about the instance: CPU 2 GiB 100 Mbps, 1m1.large, IP address (redacted), network type (Private Network), and a release date of July 14, 2024, at 14:00:00. Below this is a large dropdown menu with various options categorized by color-coded sections: blue (top left), green (middle left), yellow (bottom left), and grey (right). A red arrow points from the text 'After that, you can enter the environment to study! !!' to the 'Reset Instance Password' option in the blue section.

IP 地址	付费方式	网络类型	操作
IP: 2 GiB 100 Mbps 1m1.large	按量付费 2024年7月14日 14:00:00 释放 取消	专有网络	远程连接   资源变配   停止   :

请输入功能名称关键词

远程连接	实例状态	实例设置
VNC远程连接	启动	设置用户数据
Workbench远程连接	重启	编辑标签
发送命令	停止	设置私有池
连接帮助	释放	授予/收回RAM角色
<b>实例属性</b>	<b>升降配</b>	调整宿主机部署
<b>重置实例密码</b>	<b>更改实例规格</b>	修改实例元数据访问信息
编辑实例属性	更改带宽	部署与弹性
修改实例主机名	资源变配	克隆实例
修改实例名称	<b>网络和安全组</b>	加入伸缩组
修改实例描述	修改安全组	创建弹性伸缩
开启实例释放保护	实例跨可用区迁移	调整实例所属部署集
更多实例属性		更多实例属性

After that, you can enter the environment to study! !!

## 5. VSCode connects to a remote server

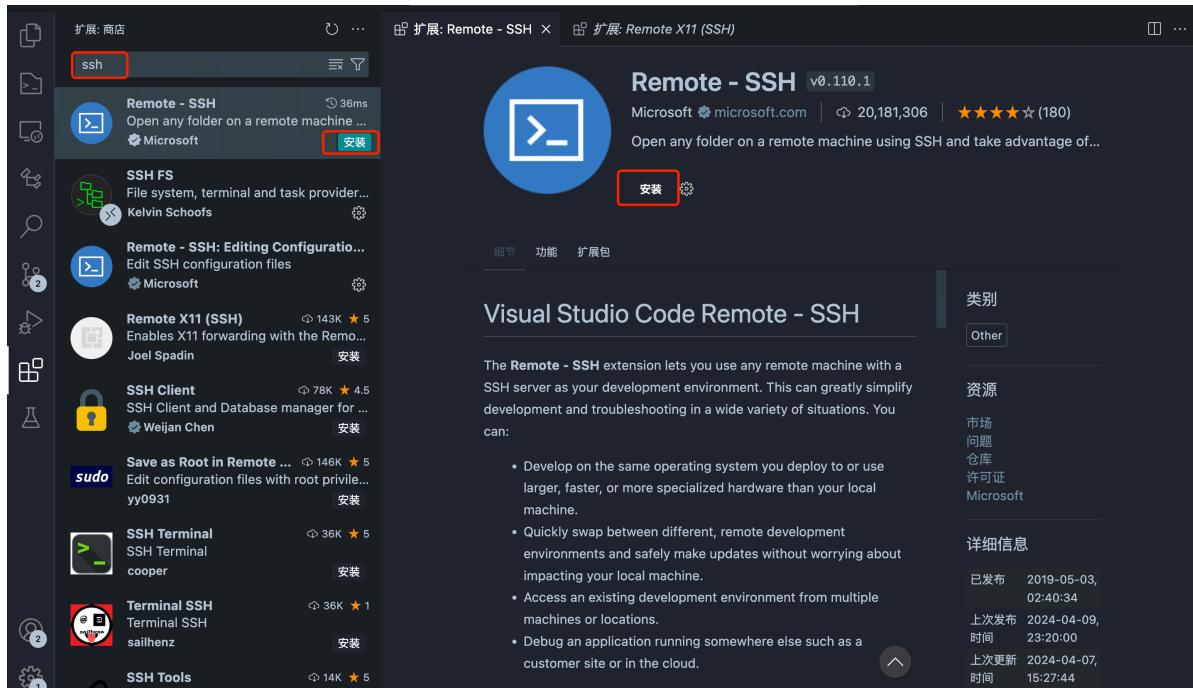
**Visual Studio Code (VSCode)** VSCode is a free, open source, modern code editor developed by Microsoft. It is favored by developers for its lightweight, high performance, and wide range of programming language support. The core features of VSCode include:

- Cross-platform** : Supports Windows, macOS, and Linux operating systems.
- Extension Market** : Provides a wide range of extension plug-ins to meet different development needs.
- Built-in Git support** : convenient for version control operations.
- Debugging tools** : built-in powerful debugging functions, supporting multiple programming languages.
- Smart Sense** : Provides intelligent prompt functions such as code completion and parameter information.
- Integrated Terminal** : Built-in terminal, you can perform command line operations without switching.
- Customization** : Supports personalized settings such as themes and key bindings.

VSCode's flexibility and ease of use make it one of the preferred code editing tools for developers.

Here we choose VSCode to connect to the remote server, which makes it convenient for us to operate the remote server directly in the local editor.

1. Install the SSH plug-in. Open the VSCODE plug-in market, search for SSH, find **Remote - SSH** the plug-in and install it.

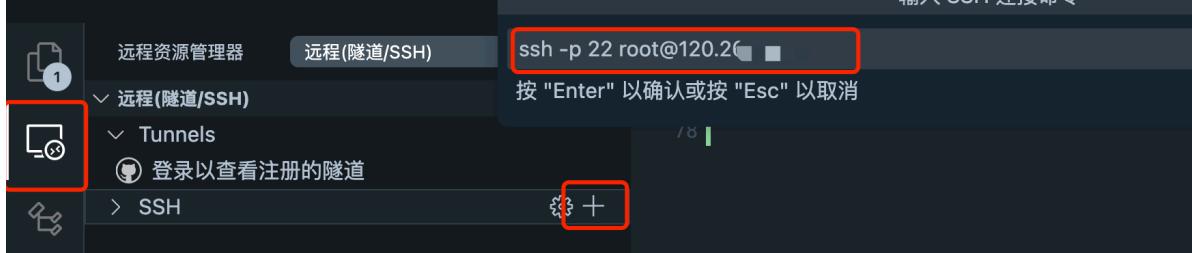


2. Get the server IP Open the instance list of Alibaba Cloud Server Find the public IP address of the server we need to connect to and copy it.

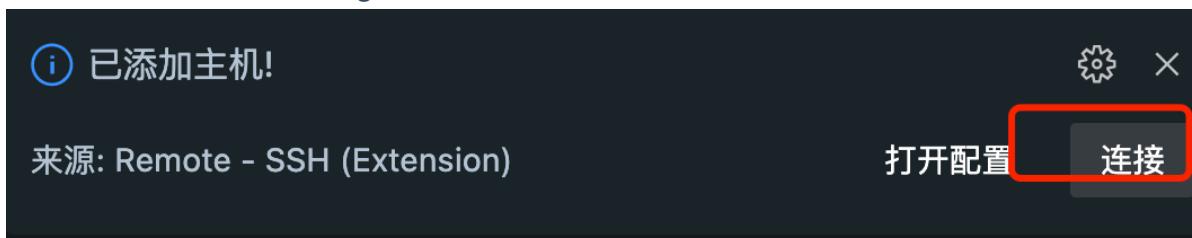
The screenshot shows the Alibaba Cloud ECS instance list. The interface includes a search bar with '自动识别' (Automatic Recognition) and a '高级搜索' (Advanced Search) button. The main table lists instances based on '实例 ID / 名称', '状态', '区', '配置', 'IP 地址', '付费方式' (Billing Method), and '操作' (Operations). One instance is selected, with its details shown in a modal overlay. The selected instance is 'i-bp1j9nnu2lbf3l1jc16u' (status: 运行中, Region: 杭州, Configuration: ecs.e-c1m1.large, IP Address: 120.26.1.161, Billing Method: 复制到剪贴板). The modal also shows the instance's creation date (2024年04月10日) and release time (14:00:00).

Open the editor of the remote server that can be connected, here we take VS CODE as an example.

3. Configure SSH. Open the plugin you just downloaded **远程资源管理器** and add the server's SSH. `ssh -p port username@ip` The port is usually set to 22. The username can be replaced with the server's IP address using root or a custom username. Select the local SSH configuration file.



Click the link in the lower right corner to enter the server.

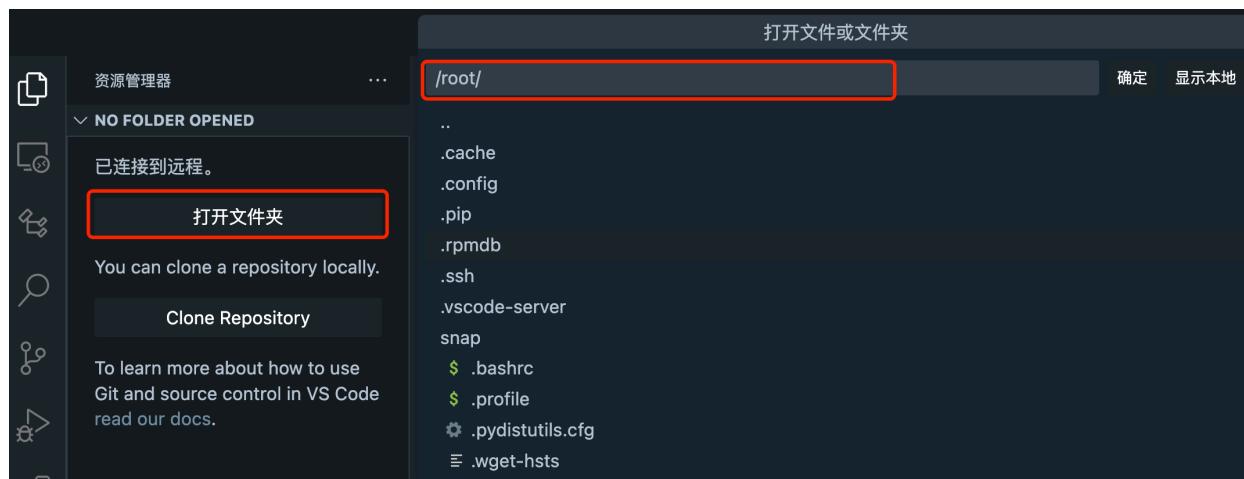


4. After connecting, when we are connected, we can continue to click on the left **远程资源管理器** to find our server, and there are two options on the right.

- The arrow is the window that opens
- The plus sign in the upper left corner means a new window is opened



5. After opening the directory, click Open Folder and enter the required directory to open it.



After that, you can start programming happily!!!

## 6. Use Jupyter Notebook

**Jupyter Notebook** is an open source library **交互式计算环境** that allows users to create and share documents containing live code, equations, visualizations, and text. Its name comes from the three core programming languages it supports: Julia, Python, and R, which is also the origin of the name "Ju-pyt-er". Files written in Jupyter Notebook have the suffix **.ipynb**

Key features of Jupyter Notebook include:

1. **Interactive Programming** : Users can write code in separate cells and execute it, [立即看到代码运行结果](#) which is very useful for fields such as data analysis, machine learning, and scientific computing.
2. **Multi-language support** : Although originally designed for Julia, Python, and R, Jupyter now supports more than 40 programming languages by using corresponding kernels.
3. **Rich presentation capabilities** : Jupyter Notebook supports Markdown, allowing users to add rich media content such as formatted text, images, videos, HTML, LaTeX, etc., making documents more vivid and informative.
4. **Data visualization** : Jupyter Notebook is seamlessly integrated with many data visualization libraries (such as Matplotlib, Plotly, Bokeh, etc.), and you can generate charts and visualize data directly in Notebook.
5. **Easy to share** : Notebook files can be easily shared via email, cloud services, or Jupyter Notebook Viewer, allowing others to view the content, run the code, and even leave comments.
6. **Extensibility** : Jupyter has a large number of extension plug-ins that can enhance its functionality, such as interactive widgets, code auto-completion, theme replacement, etc.
7. **Integration of scientific computing tools** : Jupyter Notebook can be integrated with many scientific computing and data analysis tools, such as Python libraries such as NumPy, Pandas, and SciPy, making data processing and analysis more convenient.

Jupyter Notebook is a widely used tool for data scientists, researchers, educators, and students. It promotes the development of open science and education, making it easier to share and reproduce research results.

This tutorial uses Jupyter Notebook to write and run code, which makes it easier for us to write and debug code.

**VSCODE** Currently, you can open Jupyter Notebook files directly without installing any plugins. (You can also follow the next chapter to install and configure plugins)

A Notebook document consists of a series of cells, which are mainly in the following two forms.

- **Code cell** : Enter code in a code cell and press **Shift + Enter** to run the code in the cell and display the output result below.
- **Markdown cell** : Use **Markdown** the syntax to write text in the cell. You can create headings, lists, links, formatted text, etc., and use **Ctrl + Enter** to render the current Markdown cell.

We usually use code cells to write code and run it in time to view the results. And use the following shortcut keys to improve efficiency:

## Cell Editing

- **Enter** : Enter edit mode.
- **Esc** : Exit edit mode.

## Cell Operations

- **A** : Insert a new cell above the current cell.
- **B** : Insert a new cell below the current cell.
- **D** (Press twice): Delete the current cell.
- **Z** : Undo the delete operation.
- **C** : Copy the current cell.
- **V** : Paste previously copied cells.
- **X** : Cut the current cell.
- **Y** : Convert the current cell to a code cell.
- **M** : Convert the current cell to a Markdown cell.
- **Shift + M** : Toggle Markdown rendering of the cell.

## Code execution and debugging

- **Shift + Enter** : Run the current cell and jump to the next cell.
- **Ctrl + Enter** : Run the current cell but do not jump to the next cell.
- **Alt + Enter** : Run the current cell and insert a new cell below it.
- **Esc** : Enter command mode.
- **Enter** : Enter edit mode.
- **Ctrl + Shift + -** : Split the current cell into two cells.
- **Ctrl + Shift + P** : Open the command palette, where you can search and execute various commands.

## Navigation and window management

- **Up / Down or K / J** : Move up or down between cells.
- **Home / End** : Jump to the beginning or end of the Notebook.
- **Ctrl + Home / Ctrl + End** : Jump to the first or last cell of the current Notebook.

- **Tab** : Switch to the next panel in the Notebook view (for example, from the Editor to the Output or Metadata panel).
- **Shift + Tab** : Switch to the previous panel in Notebook view.

## Other useful shortcuts

- **H** : Show or hide the Notebook sidebar.
- **M** : Convert the current cell to a Markdown cell.
- **Y** : Convert the current cell to a code cell.

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Now that we have the necessary foundation for development, we can proceed directly [7.](#) [環境配置](#) to environment configuration.

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## 4. Overall process of developing LLM application

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## 6. Basic use of GitHub Codespaces (optional)