



Django Framework Web Development

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Kim Chan
Sage Chau





Run-down

Existing Site

New Site Walkthrough

Design

Site Map & UML

Technical Appraisals – Frontend

Technical Appraisals – Backend

Donations

Deployment –AWS

Development Tools

Introduction

觀塘民聯會

- Old-styled design
- Outdated information
- Scattered news
- Segmented platforms



Overview of Existing Site

<https://ktra.klnfas.hk/tc/index>



Improvement



Here is a list of improvements the new web site have over the existing one

1 st	2 nd	3 rd	4 th	5 th	6 th
Fast	Unified	Design	Easy Booking	CRUD	Flexible Layout
Less Response Time	One web site Serves all purpose	Contemporary Design will Attract more young people	Booking becomes incredibly easy and fast promoting more participation	Staff will have a easier time to update the web pages and events	The use of bootstrap classes makes viewing of large and small screens equally assesible

Design - color

One primary colour plus
two secondary colours



Existing Web Site

This screenshot displays several sections of the KTR website:

- 本會簡介**: Includes a '成立50週年' section with a photo of a banner and links to more details.
- 本會刊物**: Shows a thumbnail of a magazine cover and links to more issues.
- 理事長獻詞 洪錦鉉**: Features a portrait of Mr. Hung Kam-kit and his speech.
- 第二十四屆理監事會架構**: Shows a hierarchical organizational chart.
- 秘書處架構**: Shows another organizational chart for the Secretariat.



Design - Fonts

dj

Noto Sans Hong Kong

	SC: The Fallback 思源黑体	TC: "Other" Traditional? 思源黑體	HK: Rarely Seen? 思源黑體	JP: Shinjitai+! 源ノ角ゴシック	KR: == Kangxi? 본고딕
REF	简体中文 Simplified Chinese	正體中文—臺灣 Traditional Chinese — Taiwan	繁體中文—香港 Traditional Chinese — Hong Kong	日本語 Japanese	한국어 Korean
ExtraLight	人人生而自由，在尊严和权利上一律平等。他们赋有理性和良心，并应以兄弟关系的精神相对	人人生而自由，在尊嚴和權利上一律平等。等。他們賦有理性和良心，並應以兄弟關係的精神相對	人人生而自由，喺尊嚴同埋權利上一律平等。佢哋有理性同埋良心，而且應當以兄弟關係嘅	すべての人間は、生まれながらにして自由であり、かつ、尊厳と権利について心，而且應當以兄弟關係嘅	모든 인간은 태어날 때부터 자유로우며 그 권리와 존엄과 함께 동등하다.
Light					
Normal					
Regular					
Medium					
Bold					
Heavy					

Design – Elderly

Larger text

Large showcase

Flexible layout

Carousel display for automatic scrolling



Design – Elderly Font Size



觀塘民聯會

長者

青年

家庭及兒童

興趣班

社區共融

本會資訊

捐助

註冊 登入

Design – Elderly, Large showcase

青年新聞

最新動態與活動資訊

dj

Design - Elderly, Carousel

```
% if event_type == "Elderly" %>

    <!-- Events Carousel Display -->
>    <section id="events" class="py-5">...
    </section>

% else %

    <!-- 5-Cell grid Display -->
>    <section id="events" class="py-5">...
    </section>

% endif %
```



Design – Elderly, Flexible Display

觀塘民聯會 長者 青年 家庭及兒童 興趣班 社區共融 本會資訊 捐助

內容 (音樂, 瑜珈, etc) 標題 類型(全部) 發布日期(全部)



跨單位合作，參與「學與教博覽2024」，展覽主題為「培育青年人才，推動數碼轉型」，分享不同範疇的教育服務方案

2024年12月28日

詳細資訊



在這個有趣的編程訓練營中學習編程基礎。

2024年12月25日



一個峰會，旨在賦予年輕領袖技能和人脈機會。

2024年12月20日

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百年校慶首頁

Design – Elderly, Flexible Display

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內容 (音樂, 瑜珈, etc) 標題 類型(全部) 發布日期(全) 搜索

學與教博覽2024

「培育青年人才，推動數碼轉型」
Nurturing Young Talent and Navigating Digital Transformation

在這個有趣的編程訓練營中學習編程基礎。

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2024年12月28日

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學與教博覽2024

「培育青年人才，推動數碼轉型」
Nurturing Young Talent and Navigating Digital Transformation

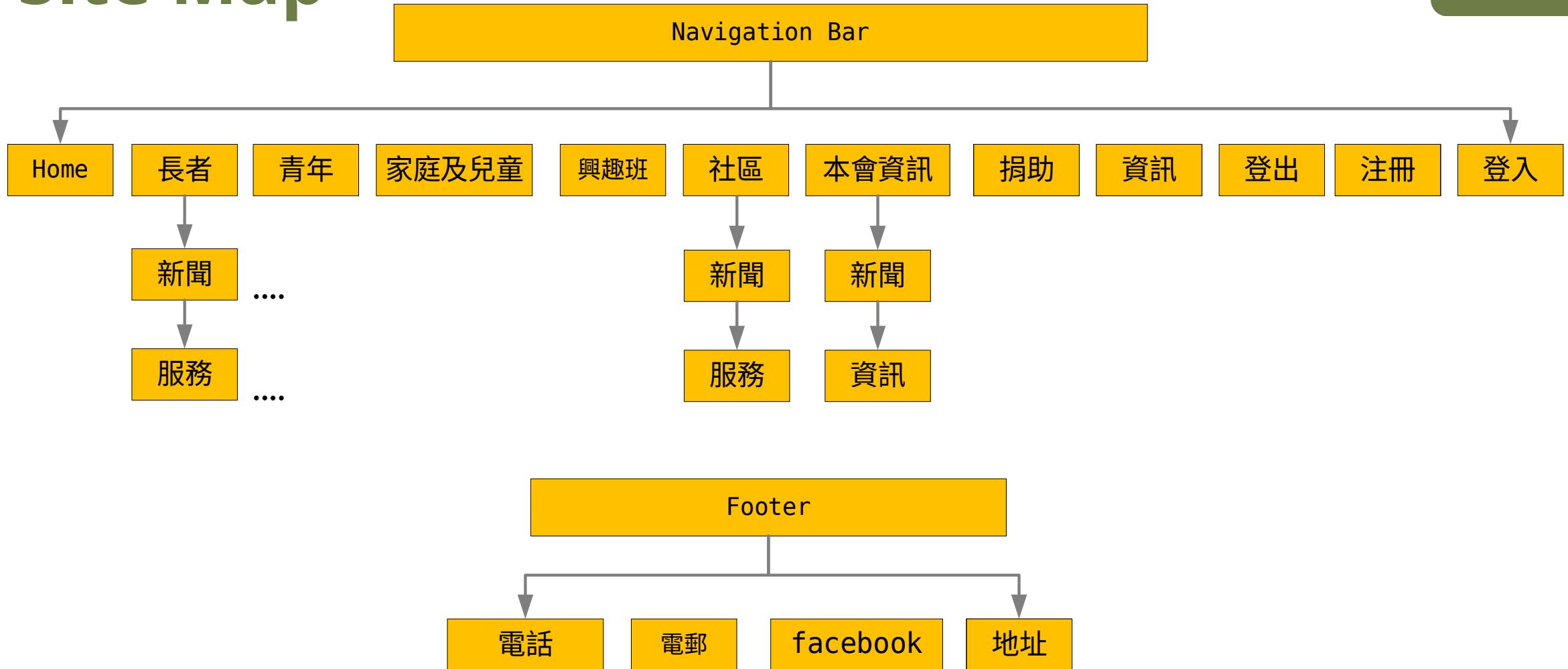
跨單位合作，參與「學與教博覽2024」，展覽主題為「培育青年人才，推動數碼轉型」，分享不同範疇的教育服務方案

2024年12月28日

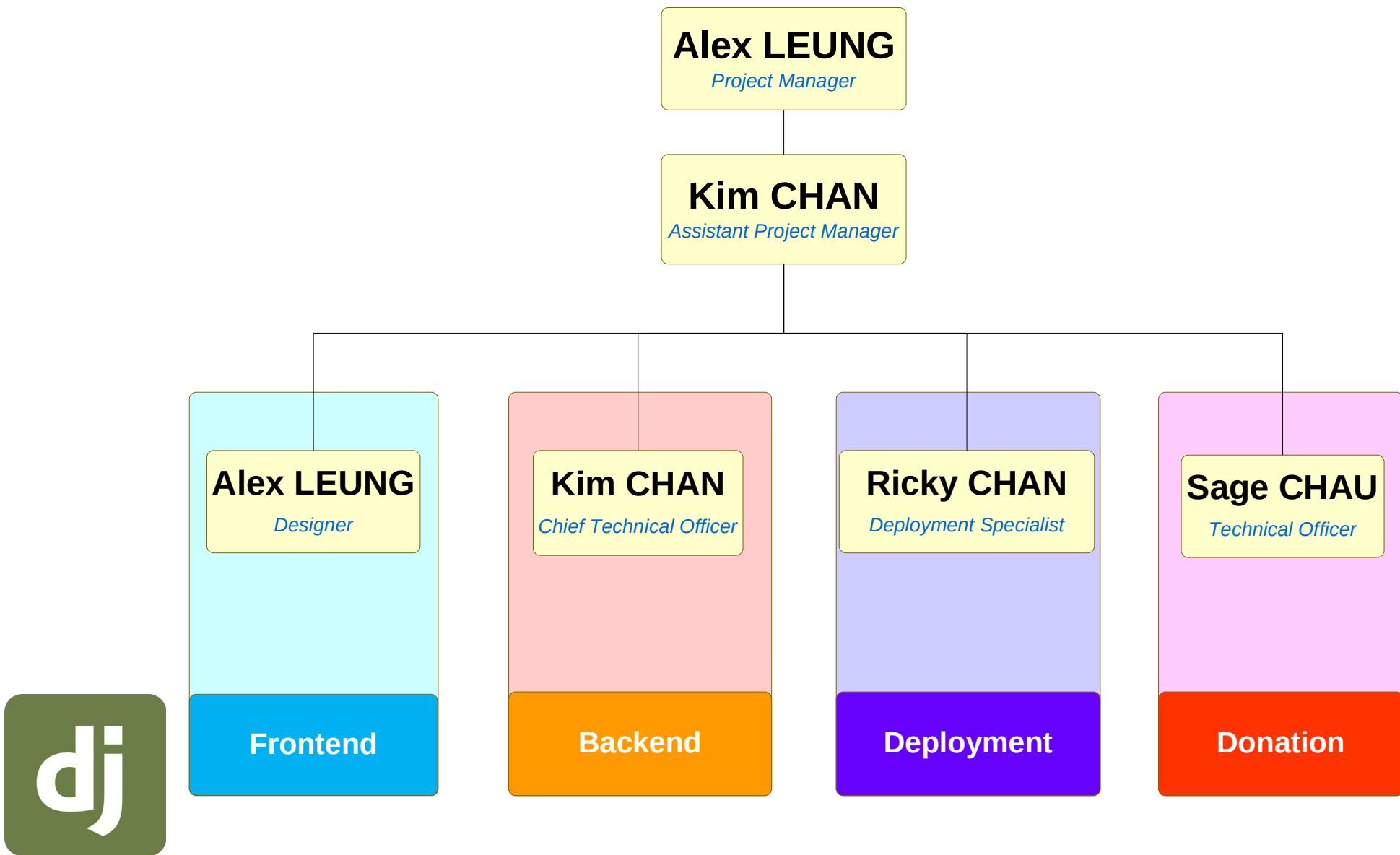
詳細資訊

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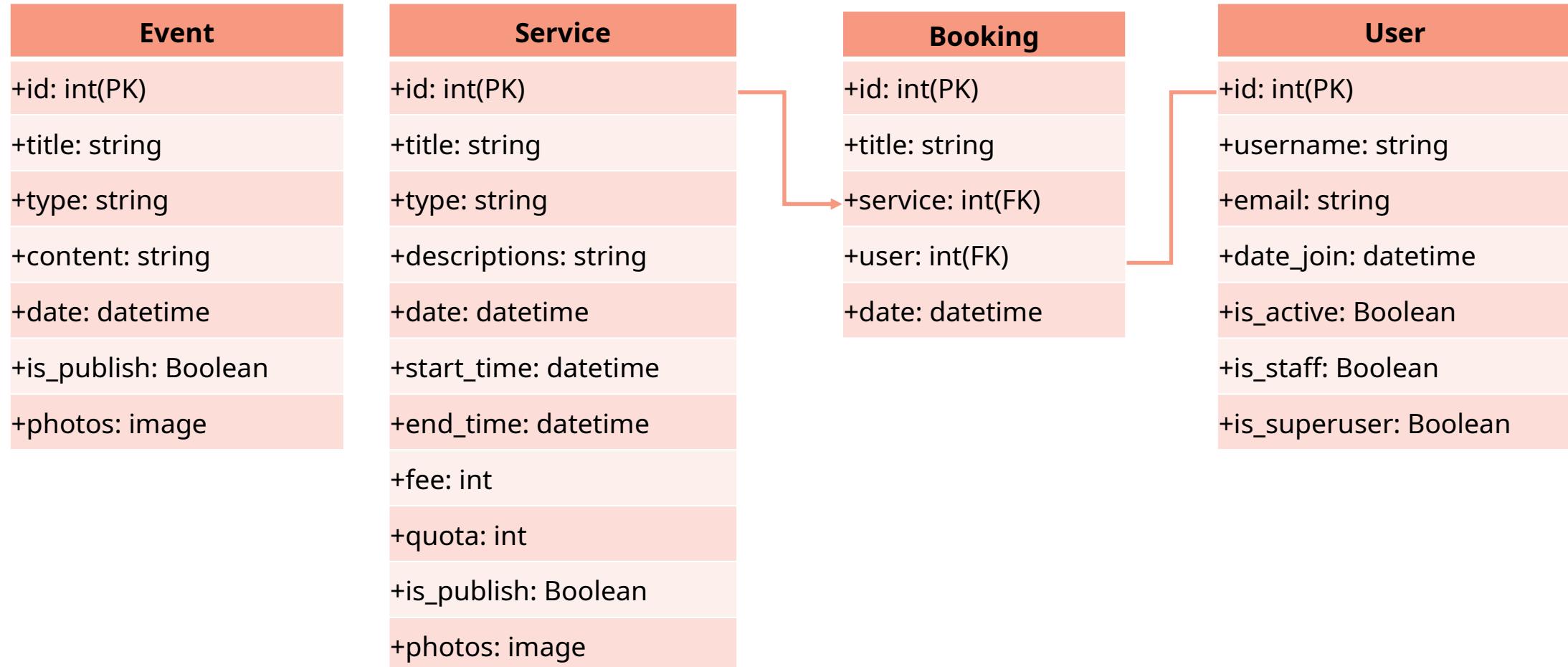
Site Map



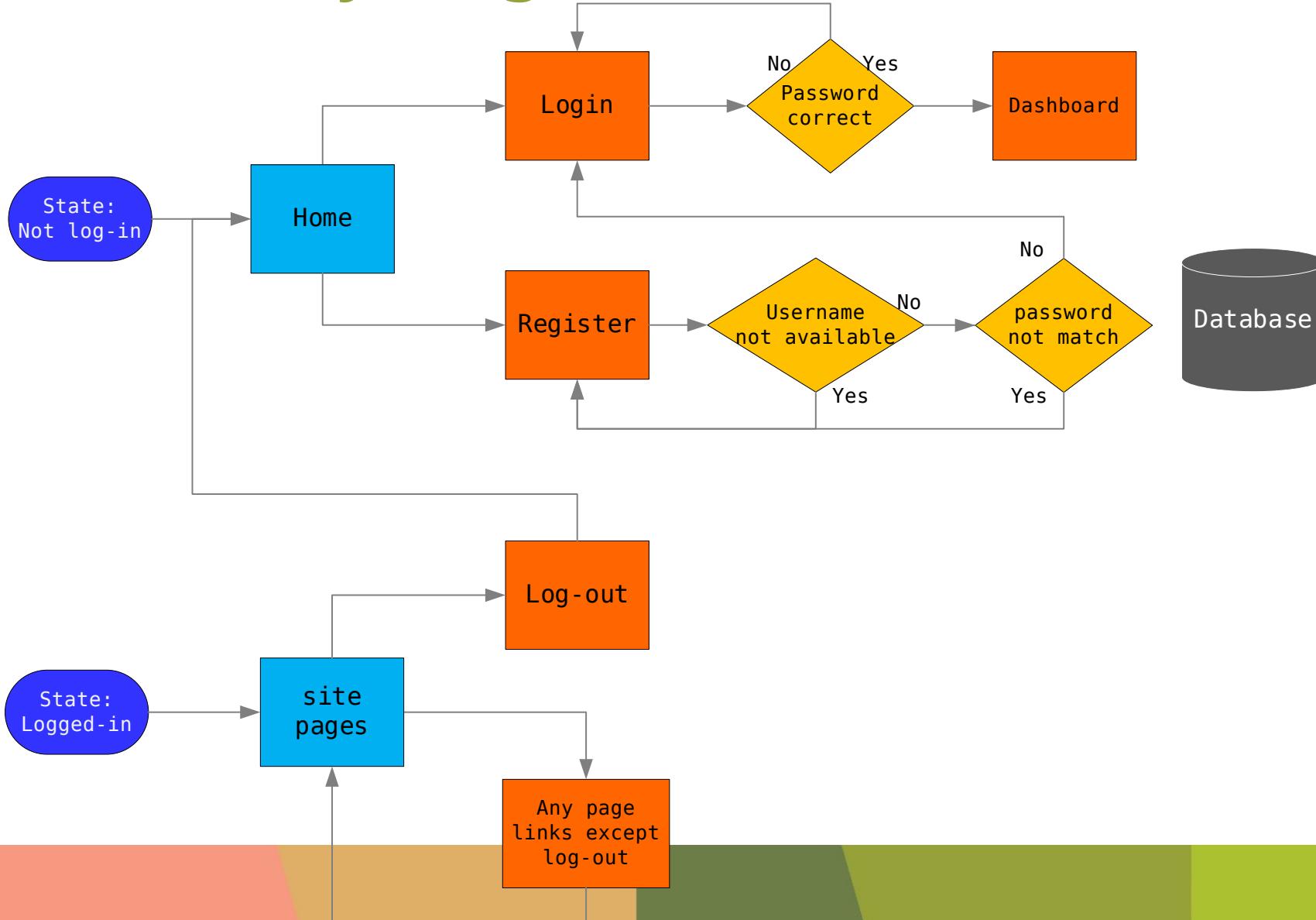
UML – Class Diagram Organization Chart



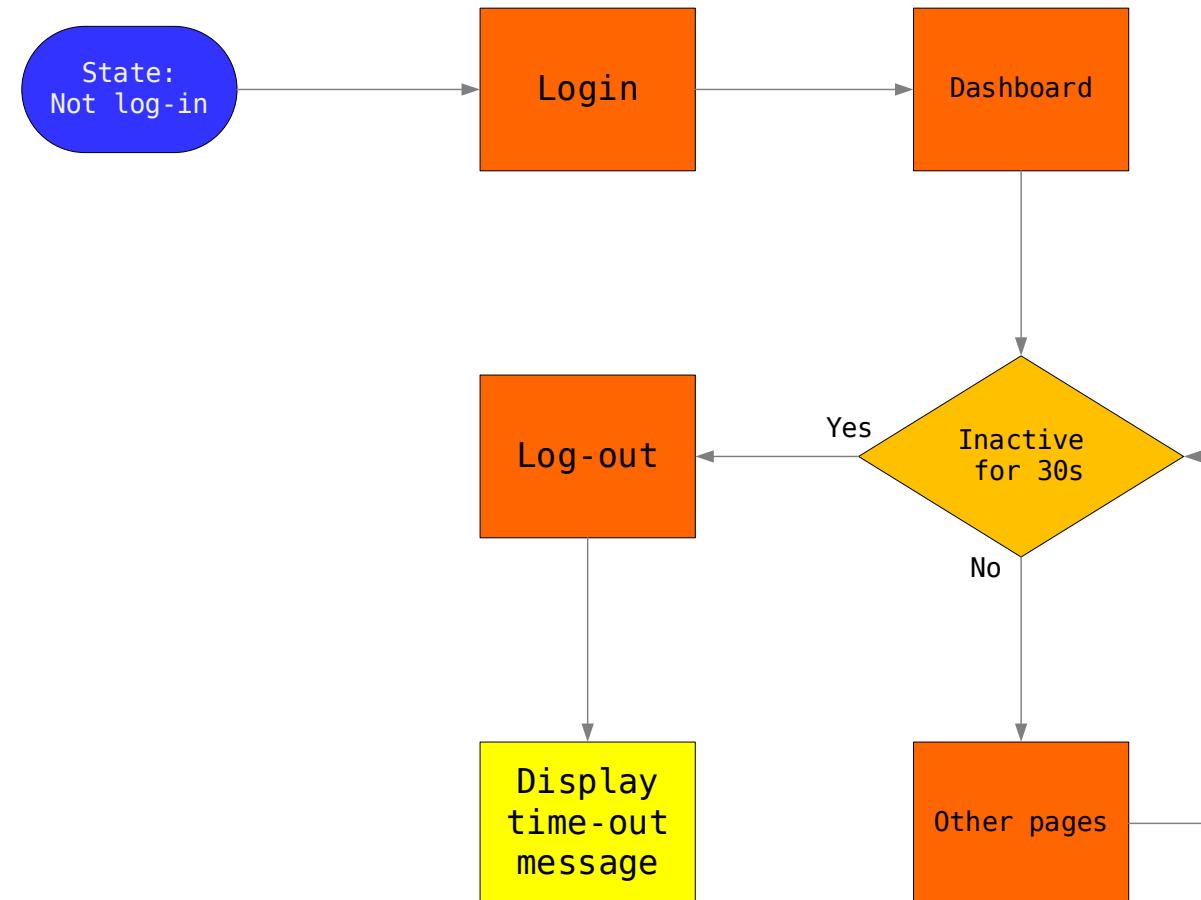
UML – Class Diagram



UML - User Activity Diagram



UML - Activity Diagram Inactive Timeout





Technical Appraisal - Frontend

HTML, CSS, JS, snippet of code

Color Gradient - demonstration

Bootstrap flex grid 5 col, VP 95

Carousel

Flex layout

Demonstration of CRUD

Inspection panel

Order of execution CSS



CSS Styling

Dressed-up otherwise plain and dull HTML

```
<!-- detail descriptions style -->
<style>
  .service-details-card {
    border: none;
    box-shadow: 0 8px 24px rgba(0,0,0,.1);
    border-radius: 16px;
    transition: transform 0.3s ease;
  }

  .service-details-card:hover {
    transform: translateY(-5px);
  }

  .service-description {
    line-height: 1.6;
    color: #4a4a4a;
  }

  .gradient-hr {
    height: 3px;
    background: linear-gradient(to right, #F79880, #DFA677);
    border: none;
    border-radius: 2px;
  }

  .detail-item {
    display: flex;
    align-items: center;
    margin-bottom: 1.2rem;
    padding: 12px;
    background: #fff9f8;
    border-radius: 8px;
    transition: background-color 0.3s ease;
  }

  .detail-item:hover {
    background: #fef4eb;
  }
}
```

With CSS



Without CSS





CSS Styling – color gradient

```
.bg-primary11 { background-image: linear-gradient(180deg, rgba(247, 145, 120, 1) 15%, rgba(247, 160, 138, 1) 30%, rgba(247, 165, 144, 1) 45%, rgba(247, 169, 150, 1) 55%, rgba(247, 173, 155, 1) 70%, rgba(247, 178, 161, 1) 85%, rgba(247, 186, 171, 1) 100%); }

.bg-primary12 {background-image: linear-gradient(0deg, rgba(247, 145, 120, 1) 15%, rgba(247, 160, 138, 1) 30%, rgba(247, 165, 144, 1) 45%, rgba(247, 169, 150, 1) 55%, rgba(247, 173, 155, 1) 70%, rgba(247, 178, 161, 1) 85%, rgba(247, 186, 171, 1) 100%);color: #212529; }

.btn-secondary { color: #212529; /* dark text color */ background-color: transparent; /* background-image: linear-gradient(180deg, rgba(247, 160, 138, 1) 15%, rgba(247, 164, 143, 1) 30%, rgba(247, 167, 147, 1) 45%, rgba(247, 169, 150, 1) 55%, rgba(247, 171, 152, 1) 70%, rgba(247, 175, 157, 1) 85%, rgba(247, 178, 161, 1) 100%); */ border:0px }
```



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127.0.0.1:8000/events/type/Family/

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家庭野餐日



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2024年12月25日

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家庭運動會



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2024年12月20日

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家庭烹飪課



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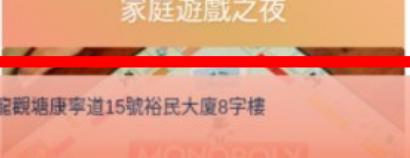
家庭音樂會



家庭電影馬拉松



家庭遊戲之夜



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MONOPOLY

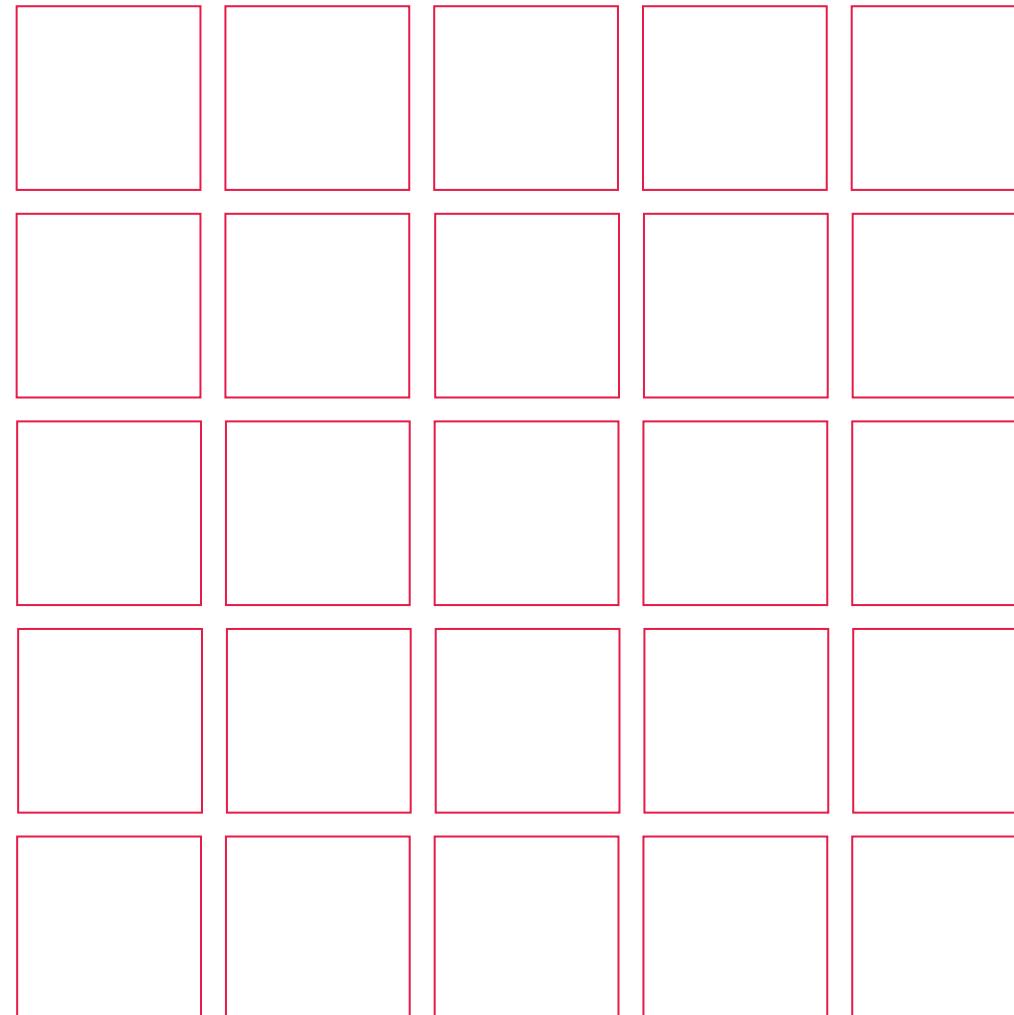
Javascript

Give the vibrance to the web page, e.g.

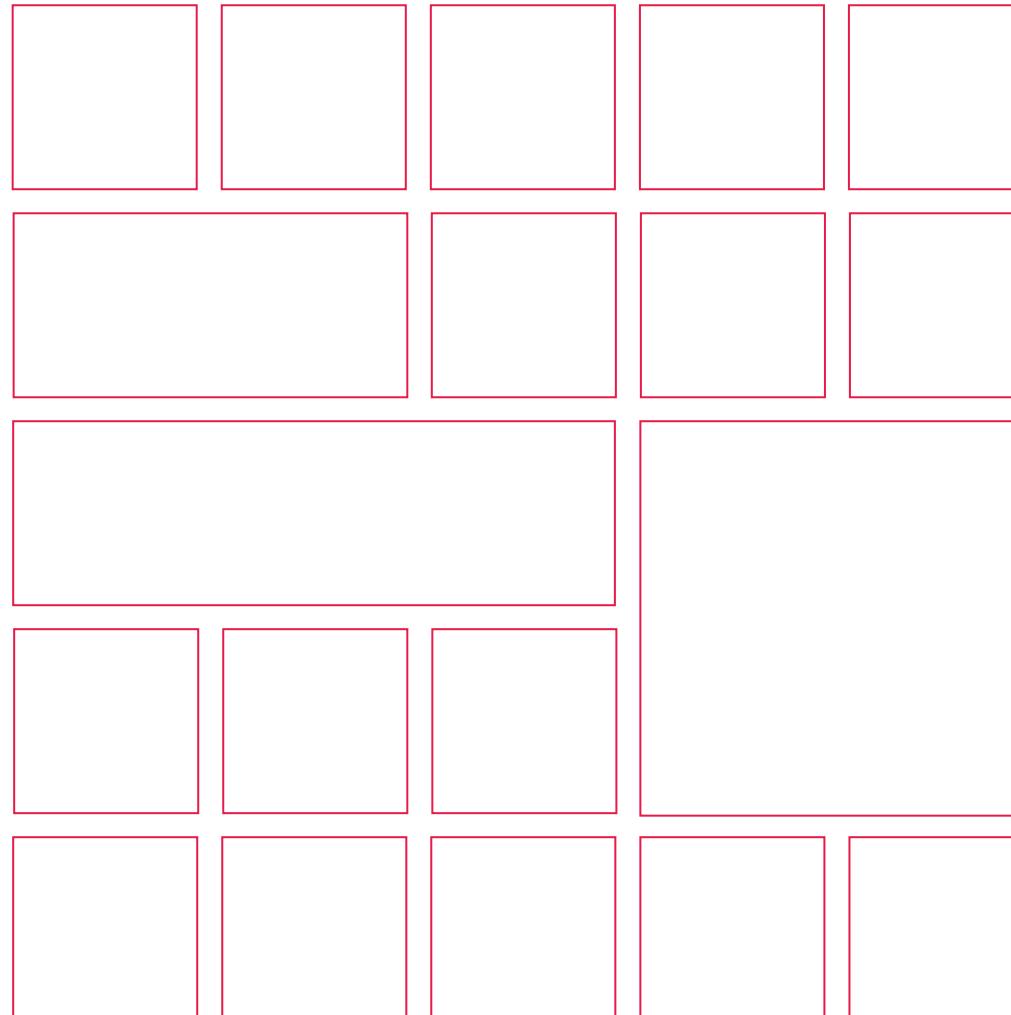
- **Carousel**
- **Text Sunrise effect**
- **Animation**



Bootstrap Flex Grid



Bootstrap Flex Grid



```
<style>
.events-grid {
  display: grid;
  grid-template-columns: repeat(5, 1fr);
  grid-auto-rows: 1fr; /* This ensures equal height rows */
  gap: 25px;
  width: 95vw;
  margin: 0 auto;
  padding: 0 20px;
}

.container {
  max-width: none !important;
  width: 100% !important;
  padding: 0;
}

.grid-item {
  width: 100%;
  height: 100%;
  transition: transform 0.3s ease-in-out;
}

.grid-item:hover {
  transform: translateZ(-10px);
}

.grid-item:first-child {
  grid-column: span 5;
  grid-row: span 1;
}
```

Bootstrap Flex Grid, Events

127.0.0.1:8000/events/type>Youth/

觀塘民聯會 長者 青年 家庭及兒童 興趣班 社區共融 本會資訊 捐助 中字 大字 [註冊](#) [登入](#)

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青少年編程訓練營

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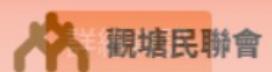
一個峰會，旨在賦予年輕領袖技能和人脈機會。

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學與教博覽2024



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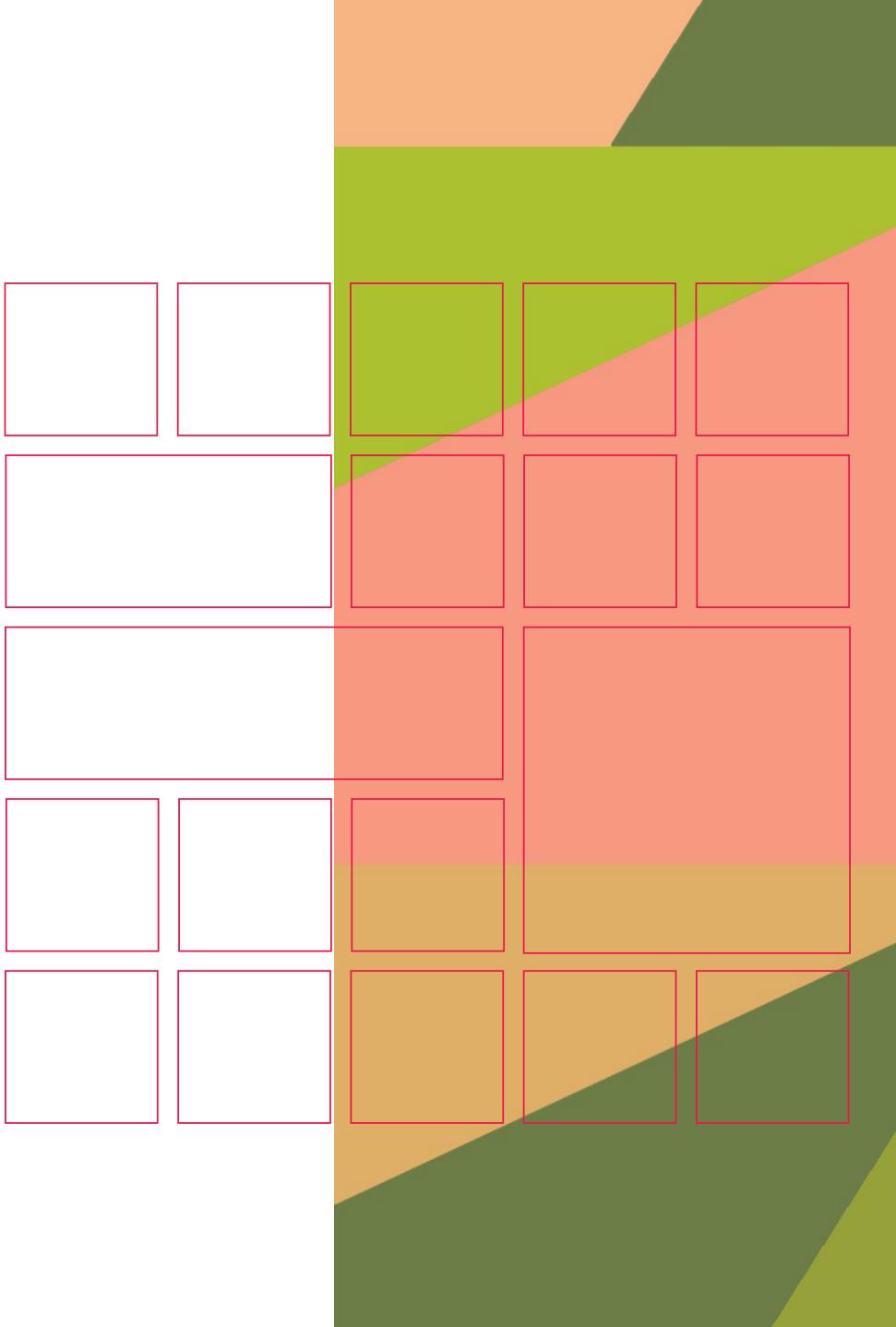
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Bootstrap Flex Grid – why use?

Abundant Display - user can assimilate multiple events in a glance

Flexible display - Changed in different screen sizes,

Display of cells can be in different combinations, 2X1, 3X1, 1X2, 2X2, etc, flexibility in highlights on various levels of important events.





Technical Appraisal - Backend

- 1. Django Framework**
- 2. The Power of Django ORM**
- 3. Django for CRUD**
- 4. Optimum Functions**



Django Framework

- 1. ORM (Object-Relational Mapping):** Allows developers to interact with the database using Python objects instead of writing raw SQL queries.
- 2. Admin Interface:** A built-in admin panel that provides a user-friendly interface to manage the application's data.
- 3. Authentication:** Built-in user authentication and authorization mechanisms.
- 4. Long-term support.**





The Power of Django ORM

- 1. Traditional method - more code, and more difficult to interact with database**
- 2. ORM - less code, more effective, directly control Database without SQL**



Traditional vs ORM

```
# Creating a cursor object
cursor = connection.cursor()

# Executing the SQL query to select all records from a table
cursor.execute("SELECT * FROM your_table_name")

# Fetching all rows from the table
rows = cursor.fetchall()
```

VS

```
all_entries = MyTable.objects.all()
```



Pages Employing ORM

C - Create:

**Object Create Function/Class.save() - Register,
Booking**

R - Read:

**Queryset - Index, Services, Service, Service-Search,
Event, Events, Event-Search, Dashboard, Login,
Register, Booking, nearly every single page in the
KTRA view and Build-in Admin interface.**

U - Update:

Build-in Admin interface

D - Delete

Build-in Admin interface



Optimum Functions

- 1. General Information context_processors**
- 2. Auto Logout**
- 3. Full quota function**
- 4. Where to login , Where to redirect**

Future Enchant:

All web page data (Include Image) control by CMS(Build-in Admin Interface)



Web Design Reference



資訊地圖 ▾ 快速連結 ▾

ENG | 简



EDUCATION for SERVICE
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大學發展

校友關係

活動及消息

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捐款方法



一般捐款

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在您的慷慨支持下，嶺南大學將繼續在教學、研究、校園和學生發展方面邁進。您可以填妥[網上捐贈表格](#)並通過以下任何一種方式捐贈予嶺大。

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只接受Visa和萬事達卡。

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賬戶名稱：嶺南大學

賸戶號碼：015-514-40-401542-0

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如果您希望使用資料表格，可在此處[下載](#)，填寫完後郵寄到本處。

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Donations page



長者 青年 家庭及兒童 興趣班 社區共融 本會資訊 捐助

註冊 登入

慷慨解囊

捐款

我們需要您的支持，為觀塘居民提供優質的社區服務！您的慷慨捐助將幫助我們改善社區設施、支持弱勢群體、舉辦教育活動、促進健康生活，並為居民創造更美好的生活環境。無論是捐款、志願服務還是物資捐贈，您的每一份貢獻都將為觀塘帶來積極的改變。讓我們攜手共建一個更溫暖、更和諧的社區，讓每一位居民都能感受到關愛與支持。感謝您的無私奉獻，讓我們一起為觀塘的未來努力！

捐款方式

您的捐款將用於支持我們的服務，讓我們為社區提供更多元化的服務。

您可以通過以下方式捐款：

- 網上捐款
- 銀行轉帳
 - 銀行名稱：中國銀行
 - 戸口名稱：觀塘民聯會
 - 戶口號碼：012-123456-001
- 支票
 - 支票抬頭：觀塘民聯會
 - 寄地址：九龍觀塘康寧道15號裕民大廈8字樓

鳴謝以下善長

Ben - HK\$100.00

Chan - HK\$200.00

Tom - HK\$500.00

Frankie - HK\$500.00

Albert - HK\$1,000.00

Albert - HK\$1,000.00

Albert - HK\$500.00

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我們也歡迎您捐贈物資，讓我們為社區提供更多服務。

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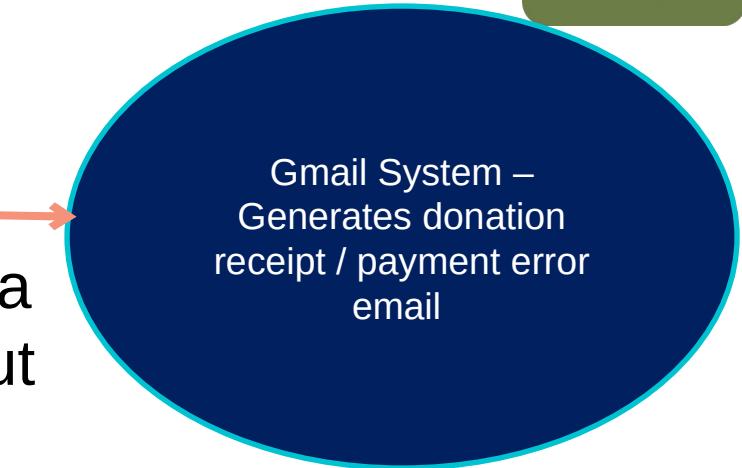
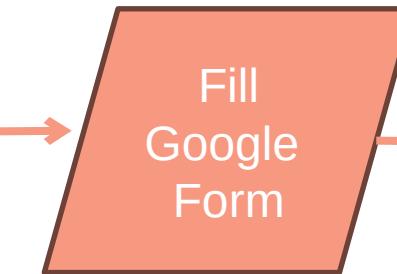
Donations Flowchart



Donors



Decided to
donate
online



Data
input



Donation records put in the
donations page to show
appreciations to donors thereby
encourage more donations

Donation form - Google form 1



觀塘民聯會

觀塘民聯會捐款表格

發揮愛心，踴躍捐款，多多益善！

* 表示必填問題

電子郵件 *

在我的回覆中記錄以下電子郵件地址: chinesecakes1@gmail.com

觀塘民聯會成立50周年，見證着觀塘區的發展和變化。無論滄海桑田，「民聯精神，服務社群」的信念一直薪火相傳。我們承諾必定會以踏石留印，抓鐵有痕的精神開拓會務，全心全意地服務居民。

50 KTRM 觀塘民聯會 成立五十周年
守正創新 服務社群

善長姓名 Name *

Albert

電話號碼 Tel *

28888888

捐款金額 (港幣\$) *

Ten dollars - HK\$10
 Twenty dollars - HK\$20
 Fifty dollars - HK\$50
 One Hundred dollars - HK\$100
 Two Hundred dollars - HK\$200
 Five Hundred dollars - HK\$500
 One Thousand dollars - HK\$1000
 其他: _____

付款方式 *

Paypal
 信用卡 (Stripe)

提交 第 1 頁, 共 1 頁 **清除表單**

Donation form p.1

1. Donor confirms his/her gmail for receiving donation receipt

2. Donor fills in

- Name
- Telephone
- Donation Amount
- Payment Method

Donation form - Google form 2

dj



觀塘民聯會捐款表格

請按以下連結支付捐款，謝謝！

付款連結 Payment link:

<https://checkout.payableplugins.com/gf/DA-MZCPQX>

[修改回覆內容](#)

[提交其他回應](#)

Donor clicks this link to proceed payment



Syncing Order



Hang tight just a few seconds.

Donation form - Payment gateway



Order Details:

Order ID: DA-TF-9JTP
Order Status: CREATED (TEST MODE)
Order Date: 01/16/2025 23:17:31

Five Hundred dollars HK\$500.00

Total Amount Due: HK\$500.00
(HKD)

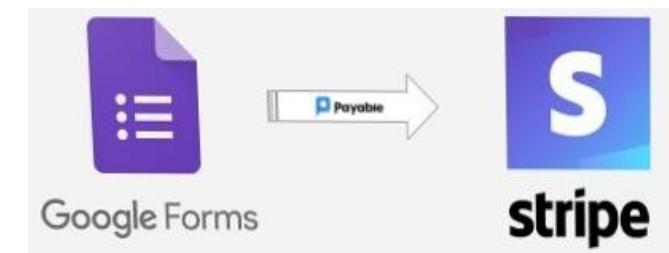
Donor Details:

Albert a@gmail.com

[Edit Donor Details](#)

Payment Options:

Powered by PayPal



Email Receipt for Donors



觀塘民聯會捐款表格

⚠️ Test Mode Order - Transactions are not real.

While in Test Mode emails are sent to installer instead of the email in the form submission response.

If Test Mode was set to "off" this email would have been sent to: charrwk@hotmail.com

主旨：衷心感謝您的慷慨捐款

親愛的善長，

我們衷心感謝您對觀塘民聯會的支持！您的慷慨捐款 **HK\$500.00** 對我們的工作意義重大，將幫助我們繼續推動服務觀塘區居民。

在此，我們很高興地提供您的捐款收據：

捐款金額: **HK\$500.00**

收據號碼: **DA-TF-8WTA**

收據連結: <https://checkout.payableplugins.com/order/DA-TF-8WTA>

您的支持不僅是對我們工作的肯定，也讓我們更加堅定前行的信心。因為有像您這樣的
支持者，我們才能在社區中發揮更大的影響力。

再次感謝您的慷慨捐助！如果您有任何問題或需要進一步的信息，請隨時聯繫我們。電
話: 2341 6308

Successful donation

Order Summary

Order Number: DA-TF-8WTA

Date: 2025-01-13

Five Hundred dollars

HK\$500.00

Subtotal: HK\$500.00

Grand Total:

HK\$500.00



[View Order Details](#)



We make accepting payment easy.



觀塘民聯會捐款表格

⚠️ Test Mode Order - Transactions are not real.

While in Test Mode emails are sent to installer instead of the email in the form submission response.

If Test Mode was set to "off" this email would have been sent to: alsdkj@falsdfkj.com

主旨：關於您的捐款轉帳問題

親愛的善長，

感謝您對我們的支持和慷慨捐款。我們非常感激您對我們工作的信任和支持。
我們發現您最近的捐款轉帳似乎出現了一些問題。我們正在進一步確認此事，我們會在
兩個工作日內致電閣下，以提供更多信息和協助。

感謝您的理解與耐心。如有任何疑問，請隨時聯繫我們。電話: 2341 6308

順祝

台安，

理事長 洪錦鉉謹啟

Unsuccessful donation

Email Notice to Admin



Admin: 觀塘民聯會捐款表格 - Order DA-TF-8WTA - Created ➔ 收件匣 ×



N A <n-a@em5401.notifications.payableapps.com>

取消訂閱

寄給我 ▾

翻譯成中文 (繁體)



⚠ Test Mode Order - Transactions are not real.

觀塘民聯會捐款表格

You got a new submission from: chanrwk@hotmail.com

We assigned Order ID: DA-TF-8WTA

Based on the choices the total amount payable is: HK\$500.00

Use the link below to check the payment status on your order
(You may not have received payment yet!):
<https://checkout.payableplugins.com/order/DA-TF-8WTA>

To see all submission details see to the: [Linked Google Sheet](#)

Order Summary

Order Number: DA-TF-8WTA
Date: 2025-01-13

Admin: 觀塘民聯會捐款表格 - Order DA-TF-7L2B - Free ➔ 收件匣 ×



N A <n-a@em5401.notifications.payableapps.com>

取消訂閱

寄給我 ▾

翻譯成中文 (繁體)



⚠ Test Mode Order - Transactions are not real.

觀塘民聯會捐款表格

You got a new submission from: alsdkj@faldsfkj.com

We assigned Order ID: DA-TF-7L2B

Based on the choices the total amount payable is: HK\$0.00

Use the link below to check the payment status on your order
(You may not have received payment yet!):
<https://checkout.payableplugins.com/order/DA-TF-7L2B>

To see all submission details see to the: [Linked Google Sheet](#)

Order Summary

Order Number: DA-TF-7L2B
Date: 2025-01-08

Successful donation

Unsuccessful donation

Donation Record List – Google Sheet

觀塘民聯會捐款紀錄表(Responses) ★

檔案 編輯 查看 插入 格式 資料 工具 擴充功能 說明

C2 | fx Ben

	A	B	C	D	E	F	G	H	I
	Form Responses1								
1	時間戳記	電子郵件地址	善長姓名 Name	電話號碼 Tel	捐款金額 (港幣\$)	付款方式	Payable Order ID	Payable Total	Payable Status
2	2025/1/6 上午 4:19:08	abc@yahoo.com	Ben	67888888	One Hundred dollars - HK\$100	Paypal	DA-TF-PW8T	HK\$100.00	paid (TEST)
3	2025/1/7 下午 9:49:06	abc@yahoo.com	Chan	69788888	Two Hundred dollars - HK\$200	Paypal	DA-TF-3ATW	HK\$200.00	checkout-started (TEST)
4	2025/1/8 上午 3:58:45	tom@gmail.com	Tom	68225221	Five Hundred dollars - HK\$500	信用卡 (Stripe)	DA-TF-F9MZ	HK\$500.00	checkout-started (TEST)
5	2025/1/13 上午 2:59:22	chanrwk@hotmail.com	Frankie	(852) 5555-1111	Five Hundred dollars - HK\$500	信用卡 (Stripe)	DA-TF-8WTA	HK\$500.00	checkout-started (TEST)
6	2025/1/16 下午 10:55:37	a@gmail.com	Albert	28888888	One Thousand dollars - HK\$1000	Paypal	DA-TF-7JGK	HK\$1,000.00	checkout-started (TEST)
7	2025/1/16 下午 11:05:55	a@gmail.com	Albert	28888888	One Thousand dollars - HK\$1000	信用卡 (Stripe)	DA-TF-U7F9	HK\$1,000.00	checkout-started (TEST)
8	2025/1/16 下午 11:17:28	a@gmail.com	Albert	28888888	Five Hundred dollars - HK\$500	Paypal	DA-TF-9JTP	HK\$500.00	checkout-started (TEST)

Deployment - AWS

Deployment

WHY AWS EC2:

Scalability:

- EC2 instances can be easily scaled up or down based on demand. You can quickly adjust instance types or use Auto Scaling groups to handle varying loads.

Flexibility:

- EC2 provides a variety of instance types to suit different workloads, from small applications to large-scale services. You can choose the right instance type based on CPU, memory, and storage needs.

Integration with AWS Services

- AWS offers a rich ecosystem of services (like RDS for databases, S3 for storage, and CloudWatch for monitoring) that can be integrated with your EC2 instance to enhance your application.

Pay-As-You-Go Pricing:



- With EC2, you pay only for the compute capacity you use. This can lead to cost savings if your application has variable usage patterns.



Deployment

WHY AWS EC2:

Accessibility:

- EC2 instances can be accessed from anywhere, allowing for remote development and deployment. This is particularly useful for collaboration and team environments.

Security:

- AWS provides robust security features, including VPCs, security groups, and IAM roles, to help you secure your application and manage access control effectively.

Docker Support:

- Docker is natively supported on EC2, enabling easy deployment and management of containerized applications. You can use services like Amazon ECS or EKS for container orchestration if needed.



Dashboard | EC2 | ap-southeast + [Alt+S]

ap-southeast-2.console.aws.amazon.com/ec2/home?region=ap-southeast-2#Home:

aws Search [Alt+S] EC2 rickywaikei

Resources

You are using the following Amazon EC2 resources in the Asia Pacific (Sydney) Region:

Instances (running)	1	Auto Scaling Groups	0	Capacity Reservations	0
Dedicated Hosts	0	Elastic IPs	0	Instances	1
Key pairs	1	Load balancers	0	Placement groups	0
Security groups	2	Snapshots	0	Volumes	1

EC2 Global View [C]

EC2 Free Tier [Info]

Offers for all AWS Regions.

2 EC2 free tier offers in use

End of month forecast
⚠ 0 offers forecasted to exceed free tier limit.

Exceeds free tier
⚠ 0 offers exceeded and is now pay-as-you-go pricing.

[View Global EC2 resources](#)

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

[Launch instance](#) [C] [Migrate a server](#) [C]

Note: Your instances will launch in the Asia Pacific (Sydney) Region

Service health

[AWS Health Dashboard](#) [C]

Region
Asia Pacific (Sydney)

Status
🟢 This service is operating normally.

[View all AWS Free Tier offers](#)

Instance alarms

⚠ 0 in alarm 🟢 0 OK 🟡 0 insufficient data

[View in CloudWatch](#) [C]

[Instances in alarm](#)

Zones

Zone name	Zone ID
ap-southeast-2a	apse2-az1
ap-southeast-2b	apse2-az3
ap-southeast-2c	apse2-az2

[Enable additional Zones](#) [C]

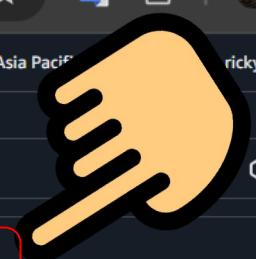
Account attributes

[C]

Default VPC [C]
vpc-Off9307b8c1bf2303

Settings

Data protection and security
Allowed AMIs
Zones



Instances | EC2 | ap-southeast-2 X +

ap-southeast-2.console.aws.amazon.com/ec2/home?region=ap-southeast-2#Instances:visibility=owned-by-me

aws | EC2 | Search [Alt+S]

Last 7 min | Connect | Instance state | Actions | Launch instances

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

Name Instance ID Instance state Instance type Last 7 min Connect Instance state Actions Launch instances

i-065d983119962d14e Running t2.micro 2/2 checks passed View alarms + ap-southeast-2a ap-southeast-2compute.amazonaws.com

i-065d983119962d14e

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID: i-065d983119962d14e
IPv6 address: -
Hostname type: IP name: ip-172-31-8-208.ap-southeast-2.compute.internal
Answer private resource DNS name: IPv4 (A)
Auto-assigned IP address: [Public IP]

Public IPv4 address: 3.27.71.21 | open address
Instance state: Running
Private IP DNS name (IPv4 only): ip-172-31-8-208.ap-southeast-2.compute.internal
Instance type: t2.micro
VPC ID: vpc-0ff9307b8c1bf2303

Private IPv4 addresses: 172.31.8.208
Public IPv4 DNS: 3.27.71.21.ap-southeast-2.compute.amazonaws.com | open address
Elastic IP addresses: -
AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more

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SecurityGroup | EC2 | ap-southeast-2

aws sole.aws.amazon.com/ec2/home?region=ap-southeast-2#SecurityGroup:groupId=sg-00d41927ed42efa57

EC2 Security Groups sg-00d41927ed42efa57 - launch-wizard-1 Actions

Details

Security group name	sg-00d41927ed42efa57	Description	launch-wizard-1 created 2025-01-15T15:24:59.066Z
Owner	682033506160	Inbound rules count	8 Permission entries
		Outbound rules count	1 Permission entry

Inbound rules Outbound rules Sharing - new VPC associations - new Tags

Inbound rules Manage tags Edit inbound rules

Name	Security group rule ID	IP version	Type	Protocol	Port range	Source
8000	sgr-0bb90f3eb0325d	IPv4	Custom TCP	TCP	8000	0.0.0.0/0
5432	sgr-018fd69d191555a1d	IPv4	PostgreSQL	TCP	5432	0.0.0.0/0
9000	sgr-0a98a62b56ea13948	IPv4	Custom TCP	TCP	9000	0.0.0.0/0
443	sgr-0a2eb7f4da97a4a38	IPv4	HTTPS	TCP	443	0.0.0.0/0
80	sgr-0ed73fd7177b99f5d	IPv4	HTTP	TCP	80	0.0.0.0/0
8081	sgr-0ff196dc135797810	IPv4	Custom TCP	TCP	8081	0.0.0.0/0
22	sgr-006a48de727ecbc40	IPv4	SSH	TCP	22	0.0.0.0/0
8001	sgr-091ae5fc8d1f6aaed	IPv4	Custom TCP	TCP	8001	0.0.0.0/0

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Connect to instance | EC2 | ap-southeast-2

ap-southeast-2.console.aws.amazon.com/ec2/home?region=ap-southeast-2#ConnectToInstance:instanceId=i-065d983119962d14e

aws EC2 Search [Alt+S]

EC2 Instances Connect to instance

Connect to instance Info

Connect to your instance i-065d983119962d14e using any of these options

EC2 Instance Connect **Session Manager** **SSH client** **EC2 serial console**

Instance ID

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is `ubuntu-vbox.pem`.
3. Run this command, if necessary, to ensure your key is not publicly viewable.
 `chmod 400 "ubuntu-vbox.pem"`
4. Connect to your instance using its Public DNS:
 `3.3.27.71.ap-southeast-2.compute.amazonaws.com`

Example:

Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

Cancel

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Deployment - Remote access aws vm



```
~/.ssh
ssh -i "ubuntu-vbox.pem" ubuntu@ec2-3-27-71-24.ap-southeast-2.compute.amazonaws.com
```



```
ubuntu@ip-172-31-8-208: ~

System load: 0.0          Processes:      160
Usage of /: 92.5% of 6.71GB Users logged in: 0
Memory usage: 67%          IPv4 address for enX0: 172.31.8.208
Swap usage: 0%

⇒ / is using 92.5% of 6.71GB

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

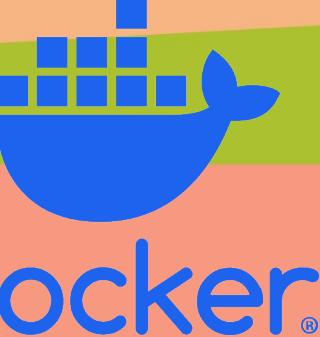
  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

39 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

1 additional security update can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

*** System restart required ***
Last login: Mon Jan 20 07:28:34 2025 from 203.145.95.207
```



Deployment

WHY DOCKER:

Lightweight:

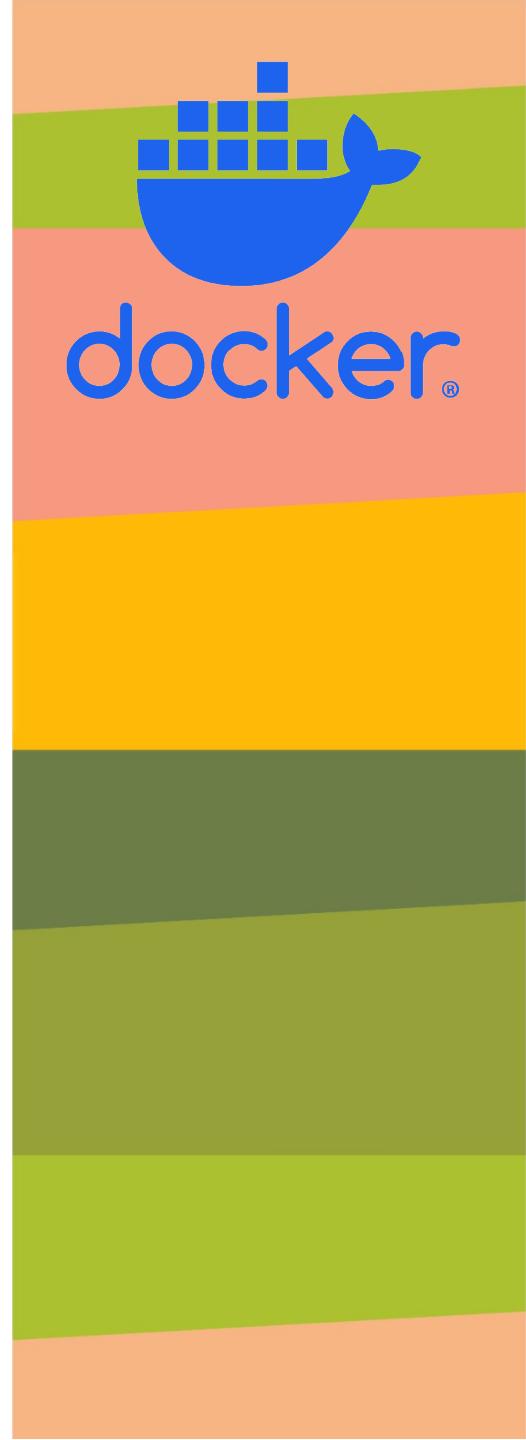
- Docker containers share the host OS kernel, making them more lightweight than VMs, which requires a full guest operating system for each instance. This results in faster startup times and lower resource overhead.

Portability:

- Docker containers can run consistently across different environments (development, testing, production), making it easier to manage deployments and reduce "it works on my machine" issues.

Isolation:

- Containers provide process isolation, ensuring that applications do not interfere with each other. This is particularly useful for managing dependencies and avoiding version conflicts.



Deployment

WHY DOCKER:

Ease of Deployment:

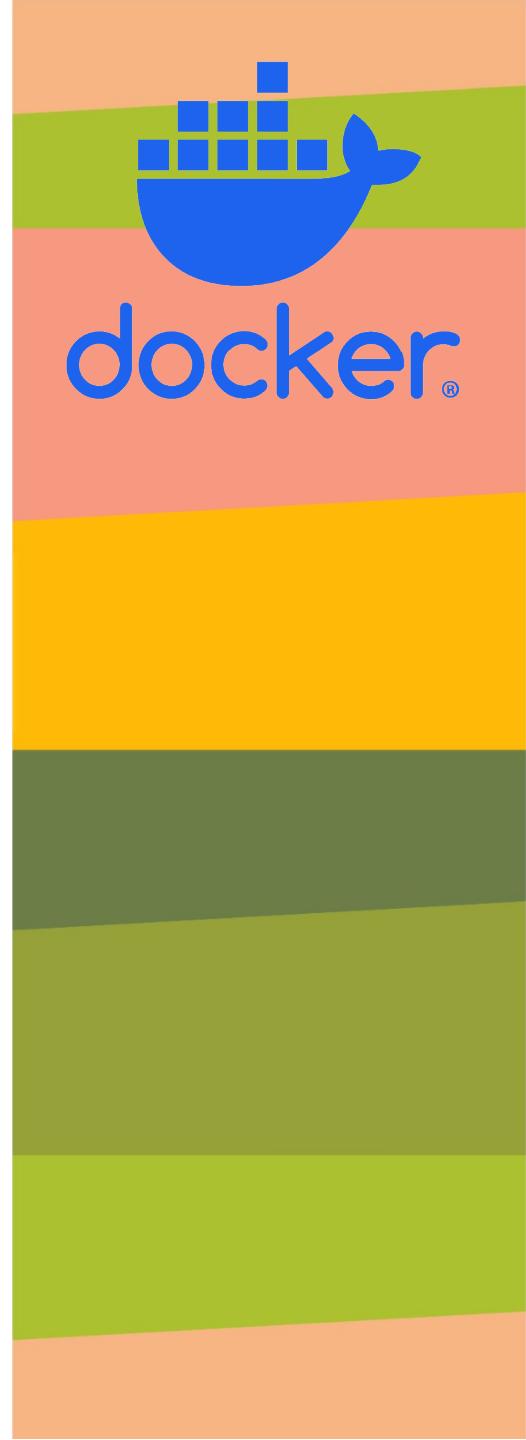
- Docker simplifies the deployment process through container images, allowing you to package your application and its dependencies together. This promotes consistency and reliability.

Scalability:

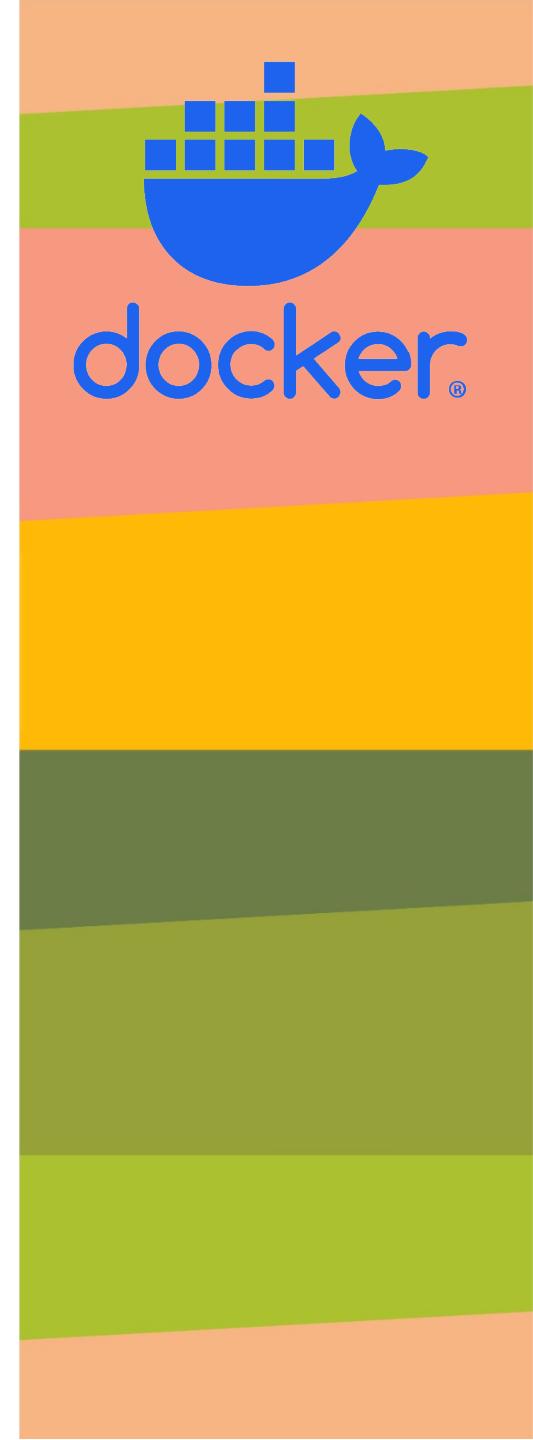
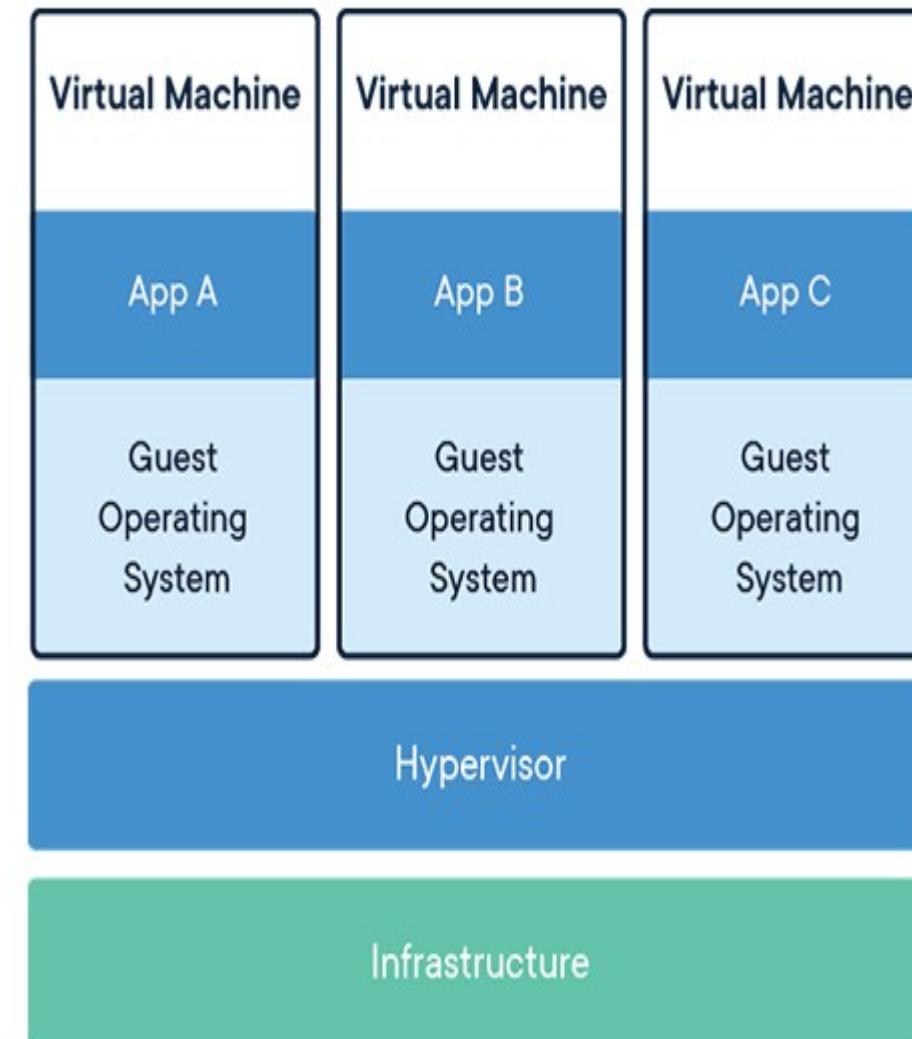
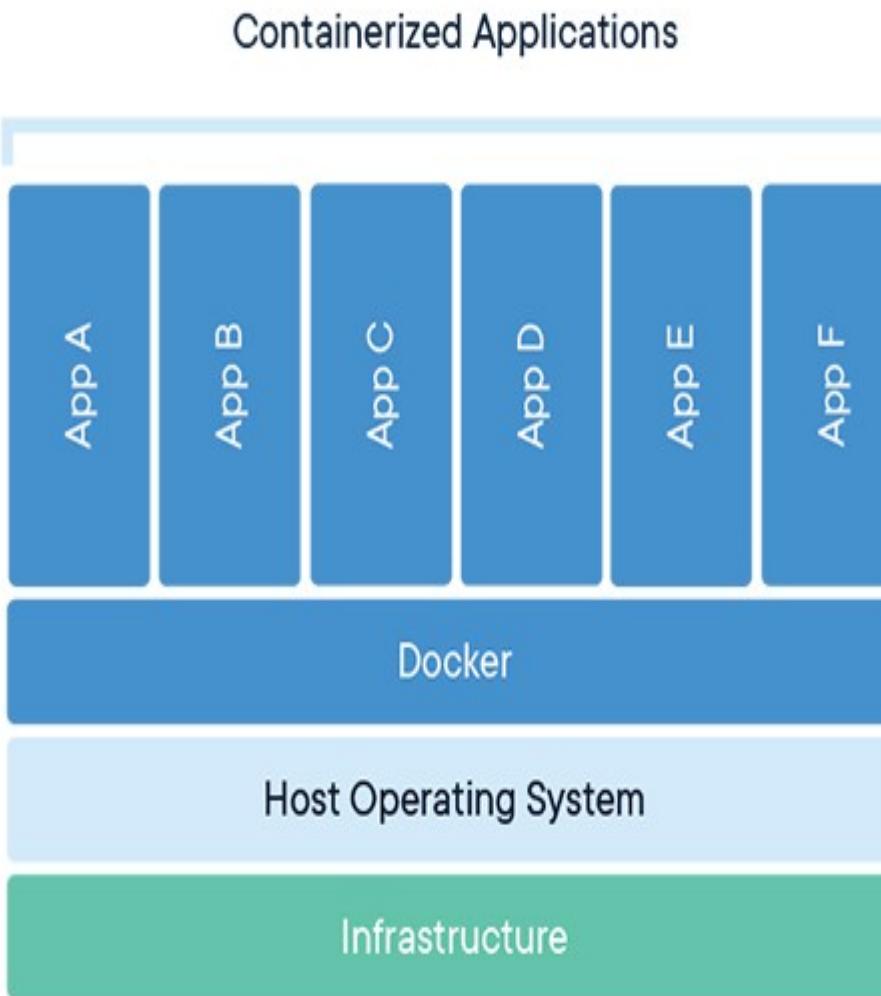
- Docker makes it easier to scale applications horizontally by deploying multiple container instances or using orchestration tools like Kubernetes or Amazon ECS.

Resource Efficiency:

- Containers typically use fewer resources than VMs, allowing you to run more applications on the same hardware.

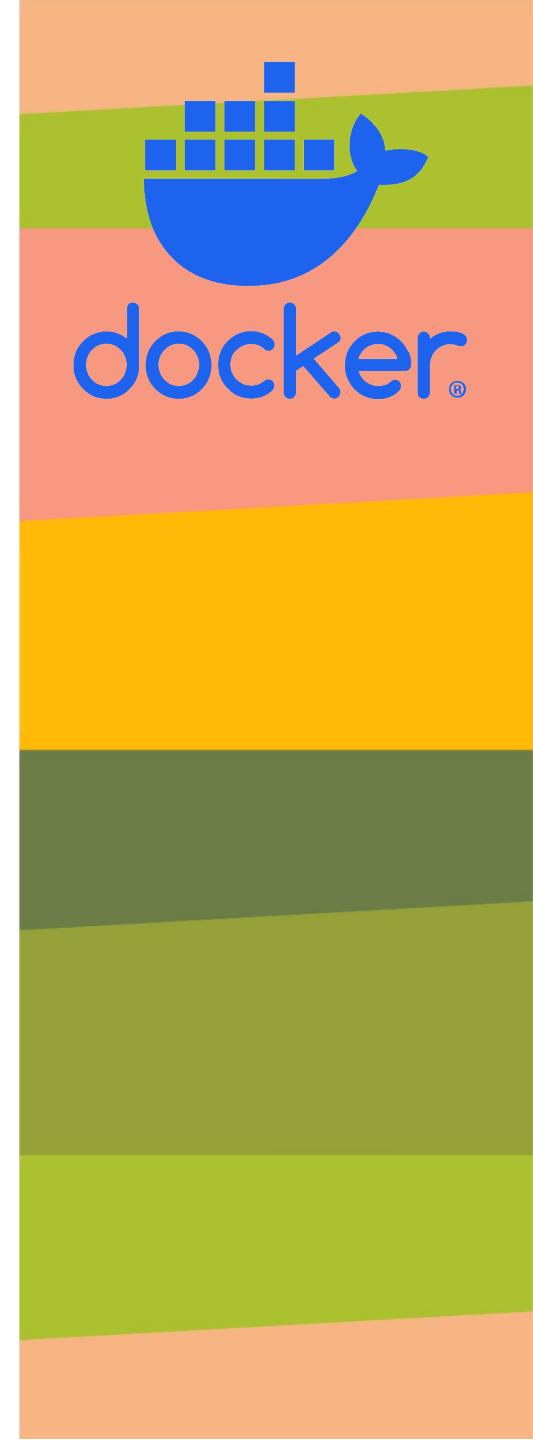


Deployment - Docker vs VM

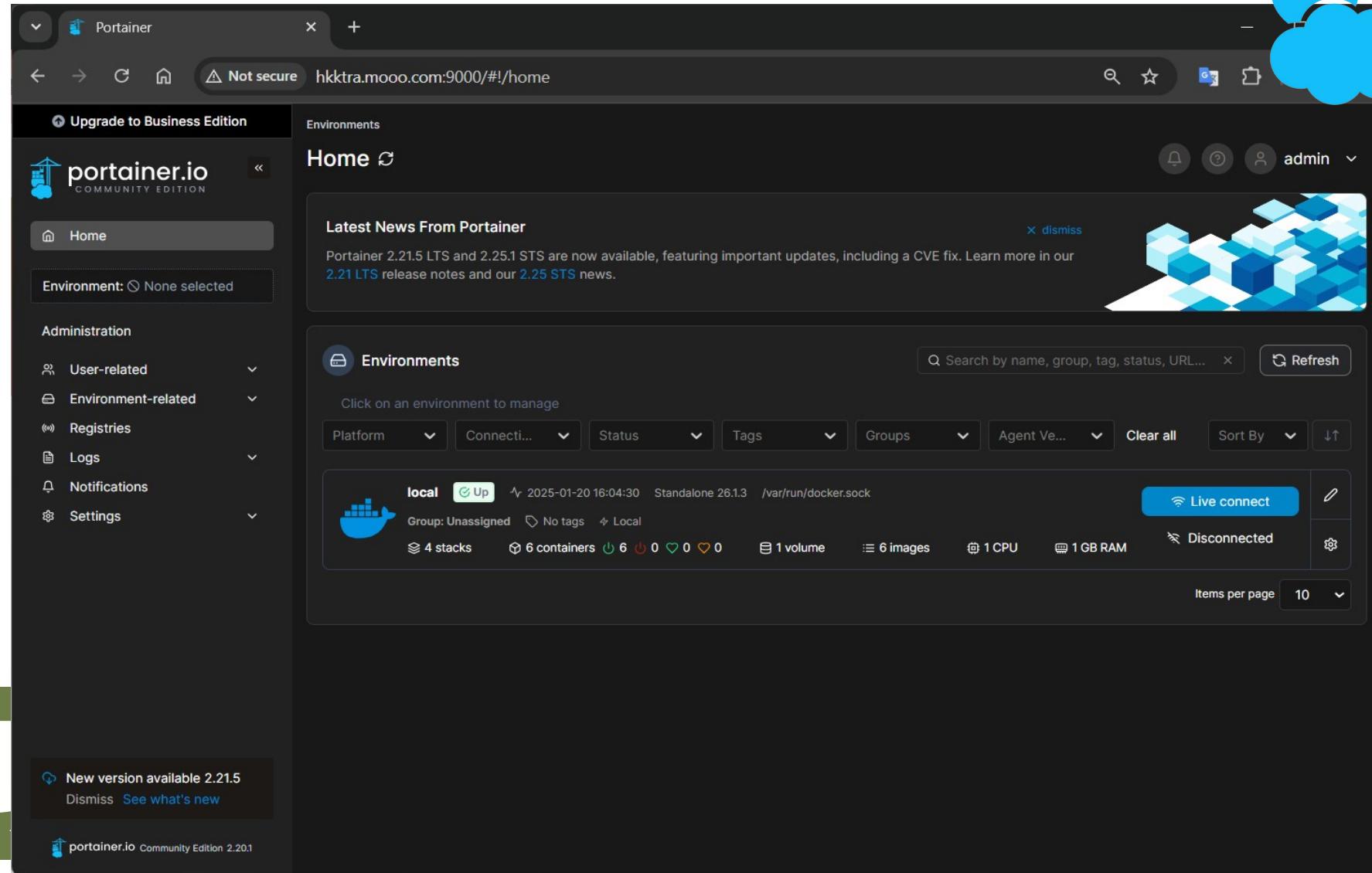


Deployment - Install Docker, Docker-compose, Portainer

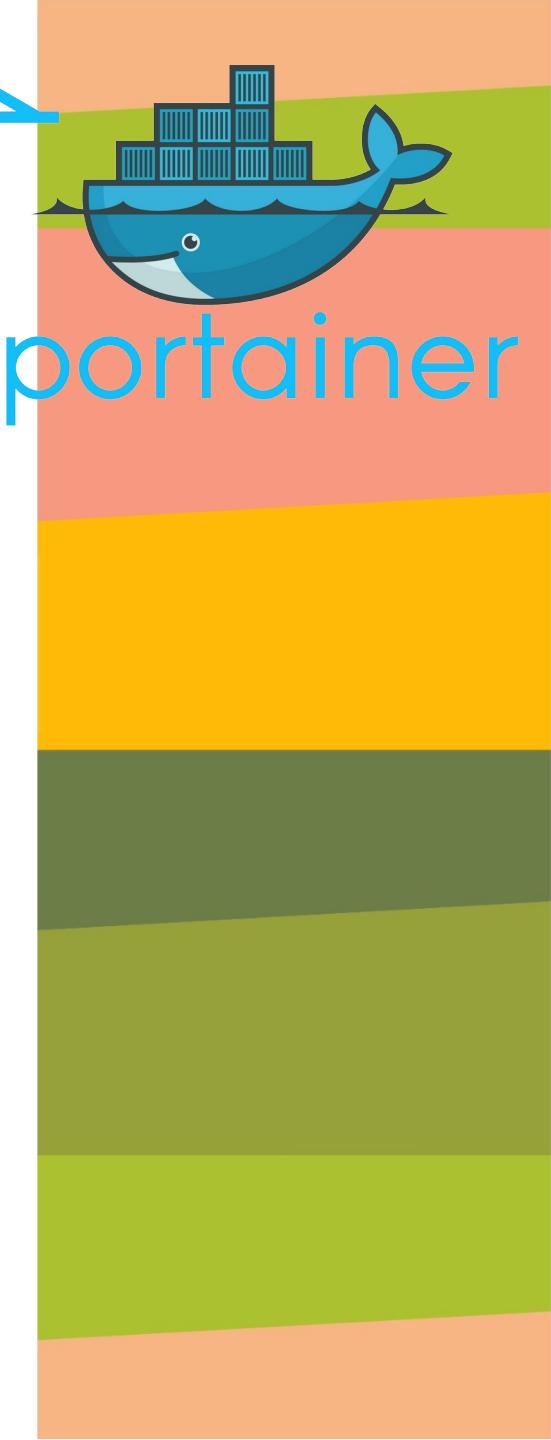
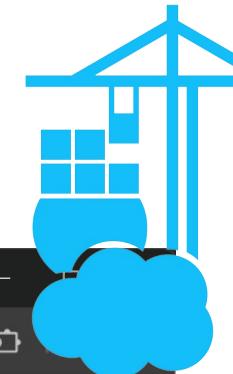
```
ubuntu@ip-172-31-8-208:~$ history|more
1 sudo apt-get update
2 sudo apt-get install docker.io
3 sudo systemctl start docker
4 sudo systemctl enable docker
5 sudo usermod -aG docker $USER
6 source ~/.bashrc
7 sudo systemctl status docker
8 docker ps
9 sudo curl -L "https://github.com/docker/compose/releases/latest/download/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
10 sudo chmod +x /usr/local/bin/docker-compose
11 mkdir compose
12 cd compose
13 mkdir portainer
14 cd portainer
15 mkdir data
16 vi docker-compose.yml
17 sudo docker-compose up -d
18 docker ps
19 docker-compose up -d
20 sudo rm /usr/local/bin/docker-compose
21 sudo curl -L "https://github.com/docker/compose/releases/latest/download/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
--More--
```



Deployment - Portainer



The screenshot shows the Portainer Home page. At the top, there's a banner for Portainer 2.21.5 LTS and 2.25.1 STS. Below it, the main interface has a sidebar titled "Administration" with sections for User-related, Environment-related, Registries, Logs, Notifications, and Settings. The main content area is titled "Environments" and shows a single environment named "local" which is "Up". It has 6 containers, 4 stacks, 1 volume, and 6 images. The environment is connected to a Standalone host with 1 CPU and 1 GB RAM. A "Live connect" button is visible. At the bottom left, there's a notification about a new version available (2.21.5). The footer indicates Portainer Community Edition 2.20.1.



Deployment - Building Project

```
ubuntu@ip-172-31-8-208:~/compose/ktra
compliance features.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

39 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

1 additional security update can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/.../esm-apps

*** System restart required ***
Last login: Mon Jan 20 08:10:47 2025 from 203.145.95.207
ubuntu@ip-172-31-8-208:~$ cd compose/ktra
ubuntu@ip-172-31-8-208:~/compose/ktra$ cat requirements.txt
Django>4.2
psycopg2-binary
Pillow
ubuntu@ip-172-31-8-208:~/compose/ktra$
```

```
ubuntu@ip-172-31-8-208:~/compose/ktra$ cat Dockerfile
# Use the official Python image based on Alpine
FROM python:3.8.20-alpine

# Set environment variables
ENV PYTHONDONTWRITEBYTECODE 1
ENV PYTHONUNBUFFERED 1

# Set the working directory
WORKDIR /app

# Install dependencies
RUN apk add --no-cache \
    gcc \
    musl-dev \
    libffi-dev \
    openssl-dev \
    bzip2-dev \
    zlib-dev \
    readline-dev \
    sqlite-dev \
    postgresql-dev \
    bash

# Copy the requirements file
COPY requirements.txt /app/

# Install Python dependencies
RUN pip install --upgrade pip
RUN pip install -r requirements.txt

# Copy the Django project files
COPY ./ktra/ /app/

# Expose the port the app runs on
EXPOSE 8000

# Command to run the application
CMD ["python", "manage.py", "runserver", "0.0.0.0:8000"]
```

```
ubuntu@ip-172-31-8-208:~/compose/ktra$ cat docker-compose.yml
version: '3.8'

services:
  db:
    image: postgres:alpine
    restart: always
    environment:
      POSTGRES_DB: ktradb
      POSTGRES_USER: postgres
      POSTGRES_PASSWORD: '1234'
      TZ: Asia/Hong_Kong # Set the timezone for PostgreSQL
    ports:
      - "5432:5432" # Assuming postgres runs on port 5432
    volumes:
      - pgdata:/var/lib/postgresql/data
    networks:
      - npm-network

  web:
    build: .
    ports:
      - "8000:8000" # Assuming Django runs on port 8000
    volumes:
      - ..:/app
    environment:
      - PYTHONUNBUFFERED=1
      - DATABASE_URL=postgres://postgres:1234@db:5432/ktradb
      - TZ=Asia/Hong_Kong # Set the timezone for the web service
    depends_on: # Ensure this is correctly formatted as a list
      - db # This indicates that the web service depends on the db service
    networks:
      - npm-network

volumes:
  pgdata:

networks:
  npm-network:
    external: true
```



Deployment - Building and Launch



```
[+]                                         ubuntu@ip-172-31-8-208:~/compose/ktra2
ubuntu@ip-172-31-8-208:~/compose/ktra2$ ls
Dockerfile  clone          ktradb_250118_2325.zip  requirements.txt
README.md   docker-compose.yml  manage.py        services
accounts    donations       media            templates
bookings    events          new
certs       knproject      pages
ubuntu@ip-172-31-8-208:~/compose/ktra2$ docker-compose build
WARN[0000] /home/ubuntu/compose/ktra2/docker-compose.yml: the attribute `version` is ob
solete, it will be ignored, please remove it to avoid potential confusion
[+] Building 2.1s (12/12) FINISHED
      docker:default
→ [web internal] load build definition from Dockerfile          0.1s
→ → transferring dockerfile: 792B                            0.0s
→ [web internal] load metadata for docker.io/library/python:3.8.20-a 1.8s
→ [web internal] load .dockerignore                           0.0s
→ → transferring context: 2B                                0.0s
→ [web 1/6] FROM docker.io/library/python:3.8.20-alpine@sha256:3d93b 0.0s
→ [web internal] load build context                         0.0s
→ → transferring context: 78B                             0.0s
→ → CACHED [web 2/6] WORKDIR /app                         0.0s
→ → CACHED [web 3/6] RUN apk add --no-cache gcc      musl-dev    l 0.0s
→ → CACHED [web 4/6] COPY requirements.txt /app/
→ → CACHED [web 5/6] RUN pip install --upgrade pip           0.0s
→ → CACHED [web 6/6] RUN pip install -r requirements.txt        0.0s
→ [web] exporting to image                                 0.1s
→ → exporting layers                                     0.0s
→ → writing image sha256:fdcb9c50080f5fa7b40da0d698fae52c0481ba2eef 0.0s
→ → naming to docker.io/library/ktra2
→ [web] resolving provenance for metadata
[+] Building 1/1
  web Built
```

ubuntu@ip-172-31-8-208:~/compose/ktra2\$

ubuntu@ip-172-31-8-208:~/compose/ktra2\$ docker-compose up -d

WARN[0000] /home/ubuntu/compose/ktra2/docker-compose.yml: the attribute `version` is ob
solete, it will be ignored, please remove it to avoid potential confusion

[+] Running 1/1

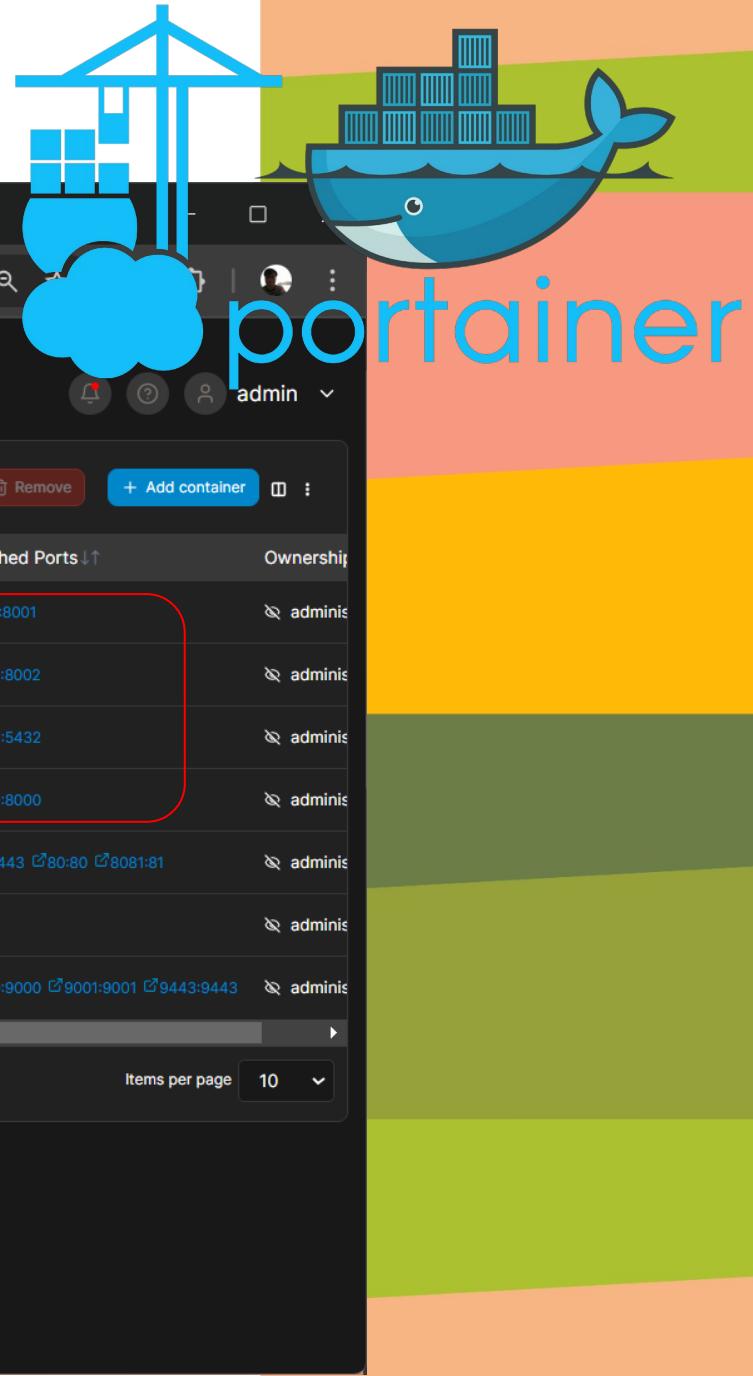
✓ Container ktra2-web-1 Started

ubuntu@ip-172-31-8-208:~/compose/ktra2\$ █



2.1s

Deployment - Monitoring



Deployment - nginx proxy manager

The screenshot shows the Nginx Proxy Manager web interface. The main dashboard lists three proxy hosts: 'erb4bcre.mooo.com' (Created: 20th January 2025), 'ktra.mooo.com' (Created: 20th January 2025), and 'moooo.com' (Created: 20th January 2025). A modal window titled 'Edit Proxy Host' is open, allowing configuration for a host named 'ktra.mooo.com'. The modal includes fields for 'Domain Names' (set to 'ktra.mooo.com'), 'Scheme' (set to 'http'), 'Forward Hostname / IP' (set to 'ktra-web-1'), and 'Forward Port' (set to '8000'). It also features toggle switches for 'Cache Assets', 'Block Common Exploits', and 'Websockets Support', all of which are enabled. The 'Access List' section indicates the host is 'Publicly Accessible'. At the bottom of the modal are 'Cancel' and 'Save' buttons. The background shows a search bar and a sidebar with navigation links like 'Dashboard', 'Hosts', 'Access Lists', and 'SSL'.

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Deployment - nginx proxy manager

Nginx Proxy Manager

Not secure 3.27.71.24:8081/nginx/proxy

Dashboard Hosts Access Lists SSL

Proxy Hosts

SOURCE	ACCESS	STATUS
erb4bcre.mooo.com Created: 20th January 2025	Public	● Online
ktra.mooo.com Created: 20th January 2025	Public	● Online
ktra2.mooo.com Created: 22nd January 2025	Public	● Online

Edit Proxy Host

Details Custom locations SSL Advanced

These proxy details are available as nginx variables:

- \$server Forward Hostname / IP
- \$port Forward Port
- \$forward_scheme Scheme

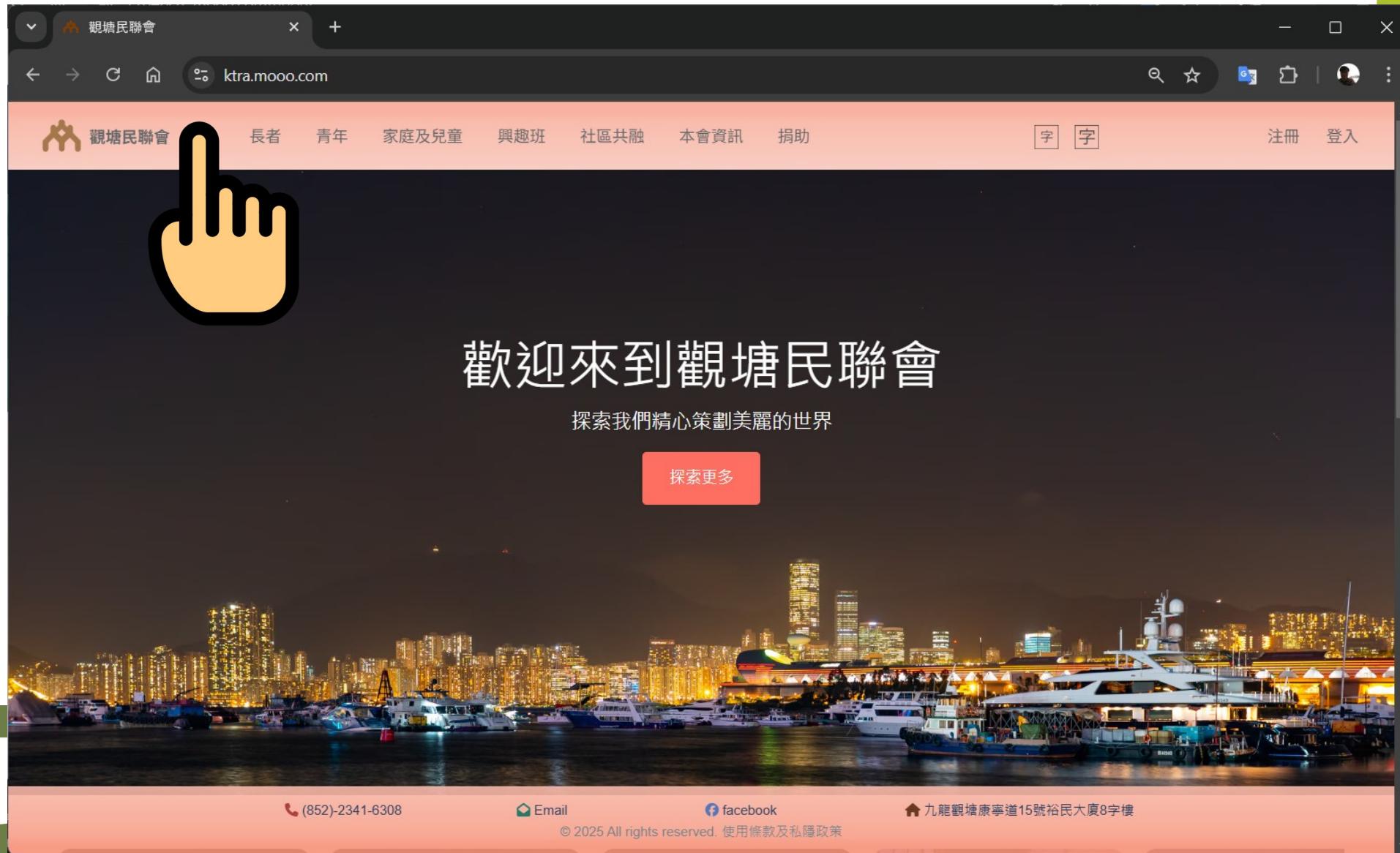
Custom Nginx Configuration

```
location /static/ {  
    alias /data/nginx/static/; # This is the path where static files are stored  
    autoindex on; # Optional: for listing files if needed  
}
```

Please note: header or set_header directives added here will not be used by the proxy host. To add a custom location '/' and add the header in the custom configuration, add a custom location '/' and add the header in the custom configuration.

Cancel Save

Done => Production with https

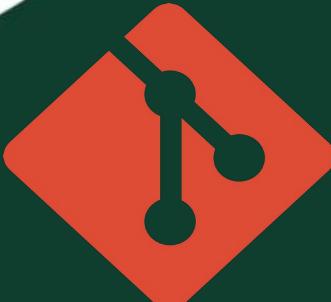
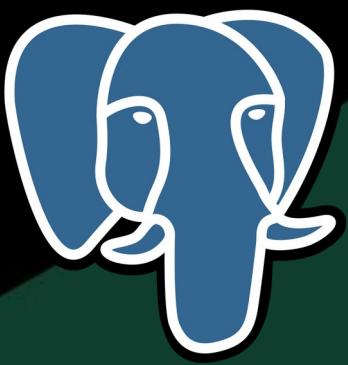
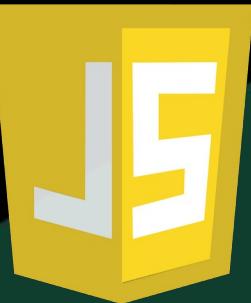


Development Tools

python™



django





AI Tools (Honorable Mentions)

Cursor



Windsurf



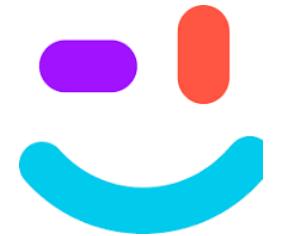
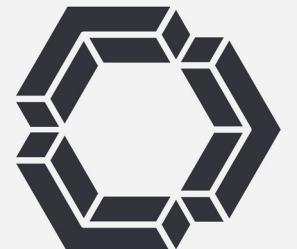
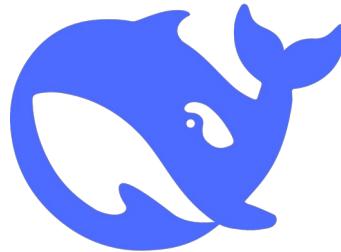
Cody

Cline

Supermaven

Continue

DeepseekV3





Questions & answers