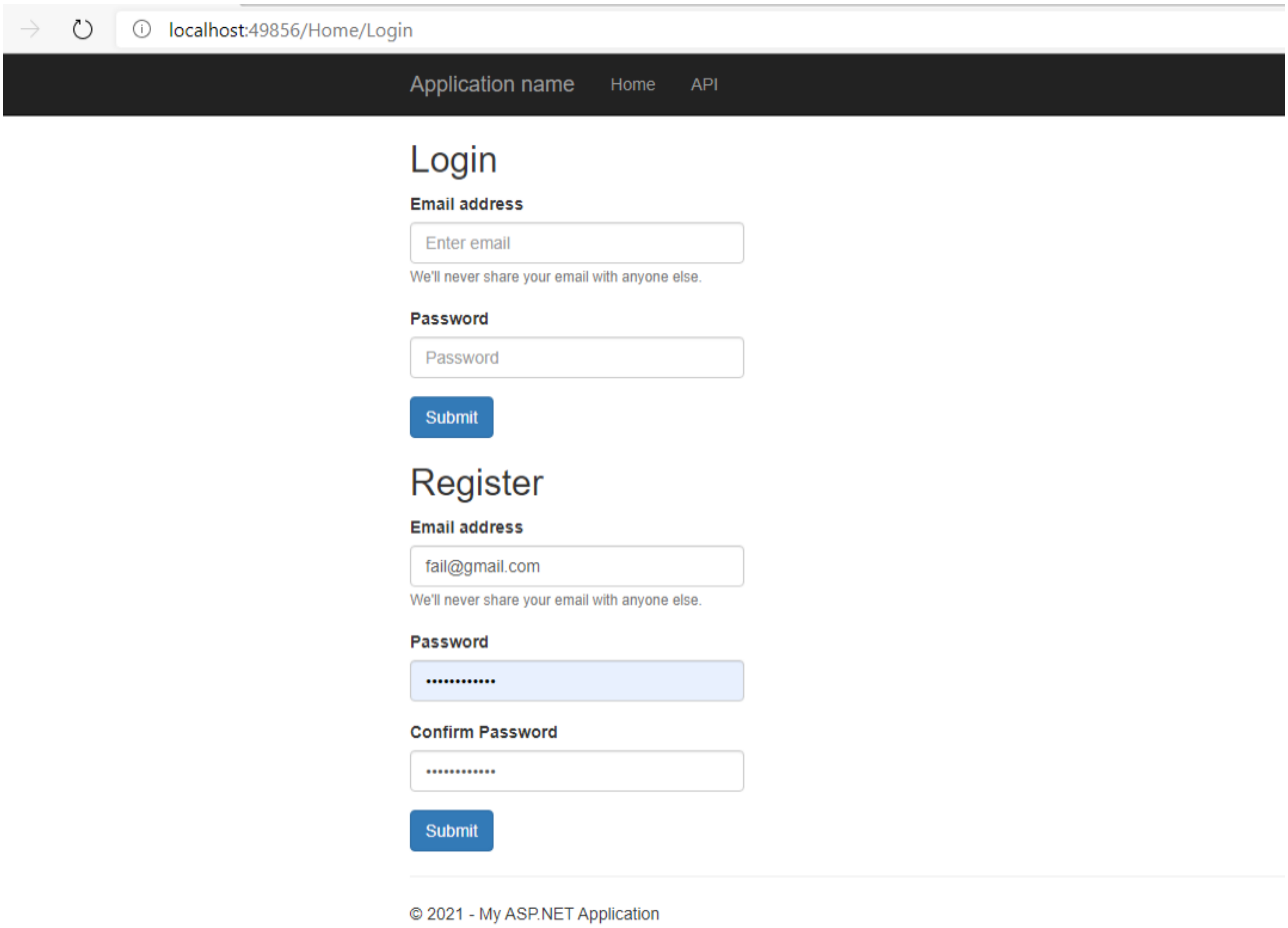
CSC Task 6

Sequence Diagrams

There are two sequence diagrams, `sequence-diagram.png` and `sequence-diagram-webhook.png`.

Usage and Testing



localhost:49856/Home/Login

Login

Email address

Enter email

We'll never share your email with anyone else.

Password

Password

Register

Email address

fail@gmail.com

We'll never share your email with anyone else.

Password

••••••••••••

Confirm Password

••••••••••••

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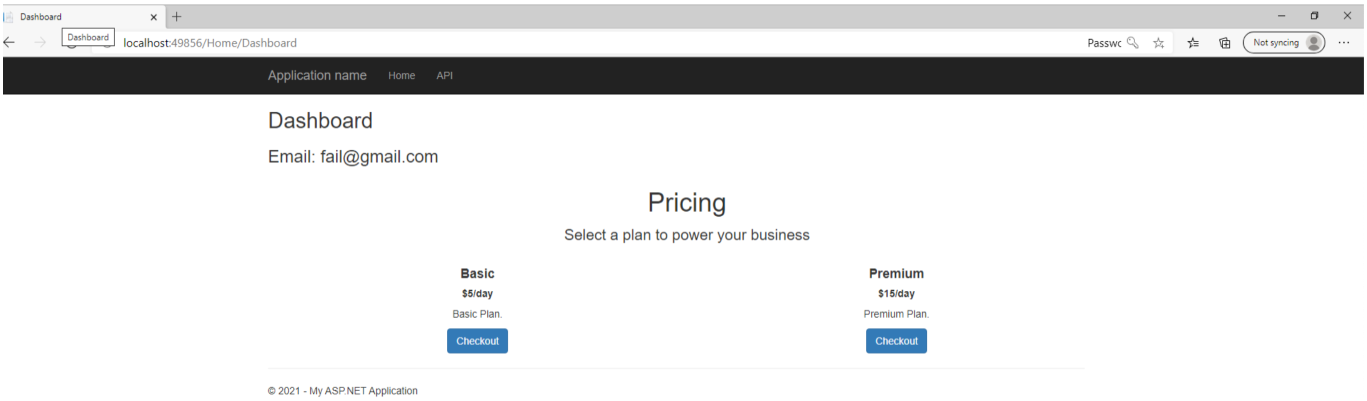
Head over to /Home/Login/ to register then login. You should then be redirected to /Home/Dashboard/

If you have no existing subscription, you should see a plans page:



Dashboard

Email: fail@gmail.com

Pricing

Select a plan to power your business

Basic	Premium
$5/day	$15/day
Basic Plan.	Premium Plan.
Checkout	Checkout

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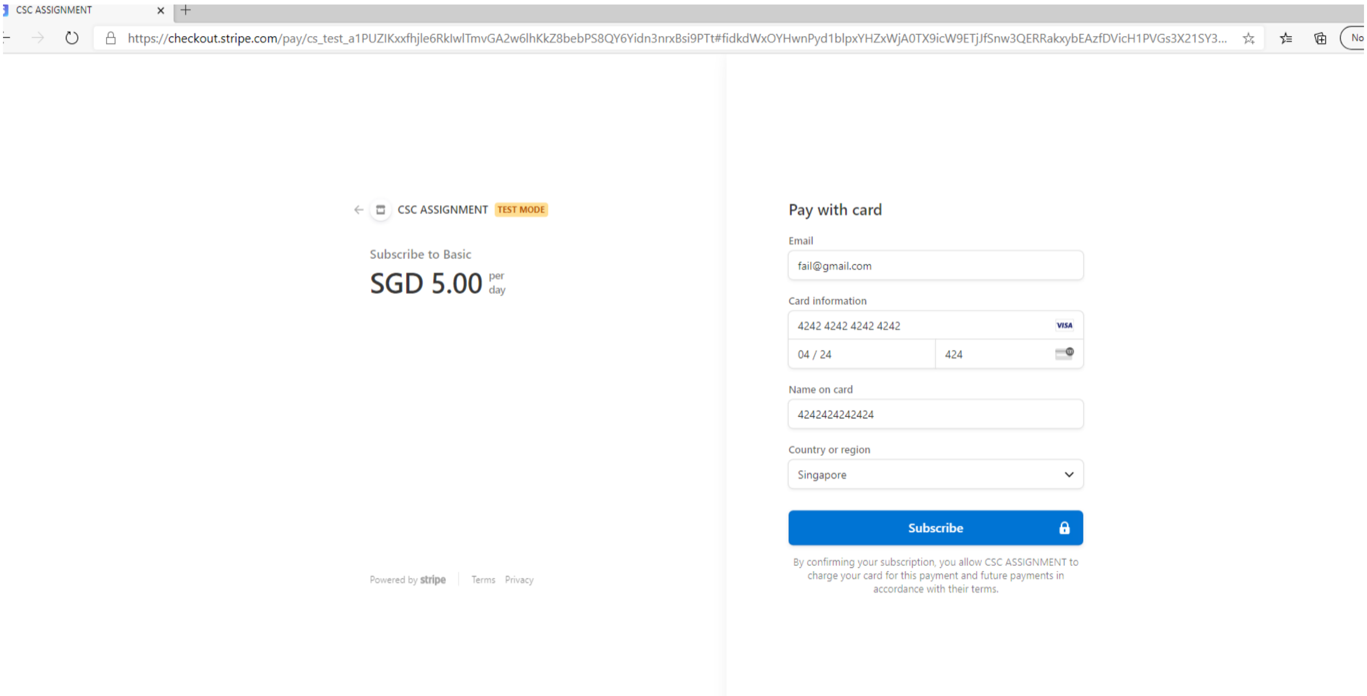
Clicking the checkout button will direct you to a Stripe Checkout page:


CSC ASSIGNMENT
https://checkout.stripe.com/pay/cs_test_a1PUZIKxxfhjle6RklwlTmvGA2w6lhKkZ8bebPS8QY6Yidn3nrxBsi9PTt#fidkdWxOYHwnPyd1blpxYHZxWjA0TX9icW9ETjJfSnw3QERRakxybEAzfDVicH1PVGs3X21SY3...
CSC ASSIGNMENT TEST MODE
Powered by stripe
Terms
Privacy

Subscribe to Basic

SGD 5.00 per day

Pay with card

Email: fail@gmail.com

Card information: 4242 4242 4242 4242 VISA, 04 / 24, 424

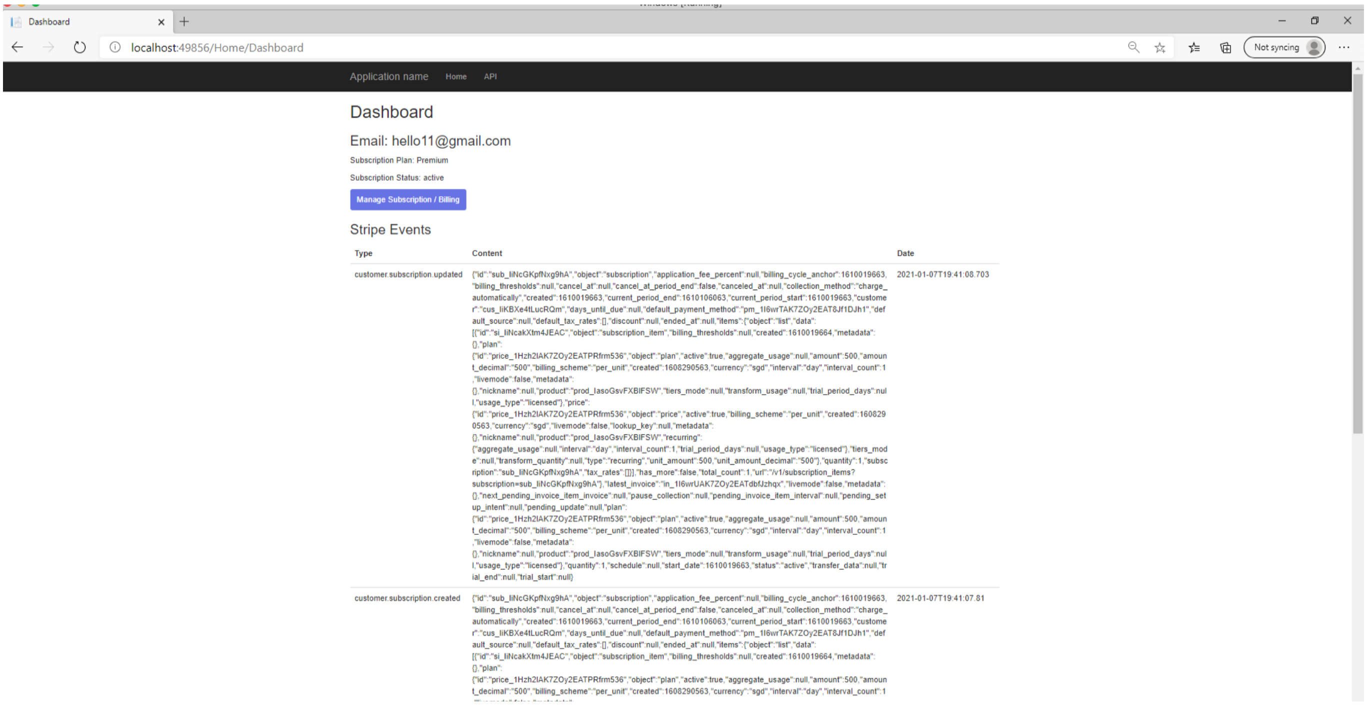
Name on card: 4242424242424

Country or region: Singapore

By confirming your subscription, you allow CSC ASSIGNMENT to charge your card for this payment and future payments in accordance with their terms.

Note that you can use 4242 4242 4242 4242 as a test card when checking out or managing subscriptions.

After checkout is completed, you will be redirected back to the dashboard, which will now show the subscription plan, status, manage billing button, and a list of stripe charge and subscribe events.



Dashboard

Email: hello11@gmail.com

Subscription Plan: Premium

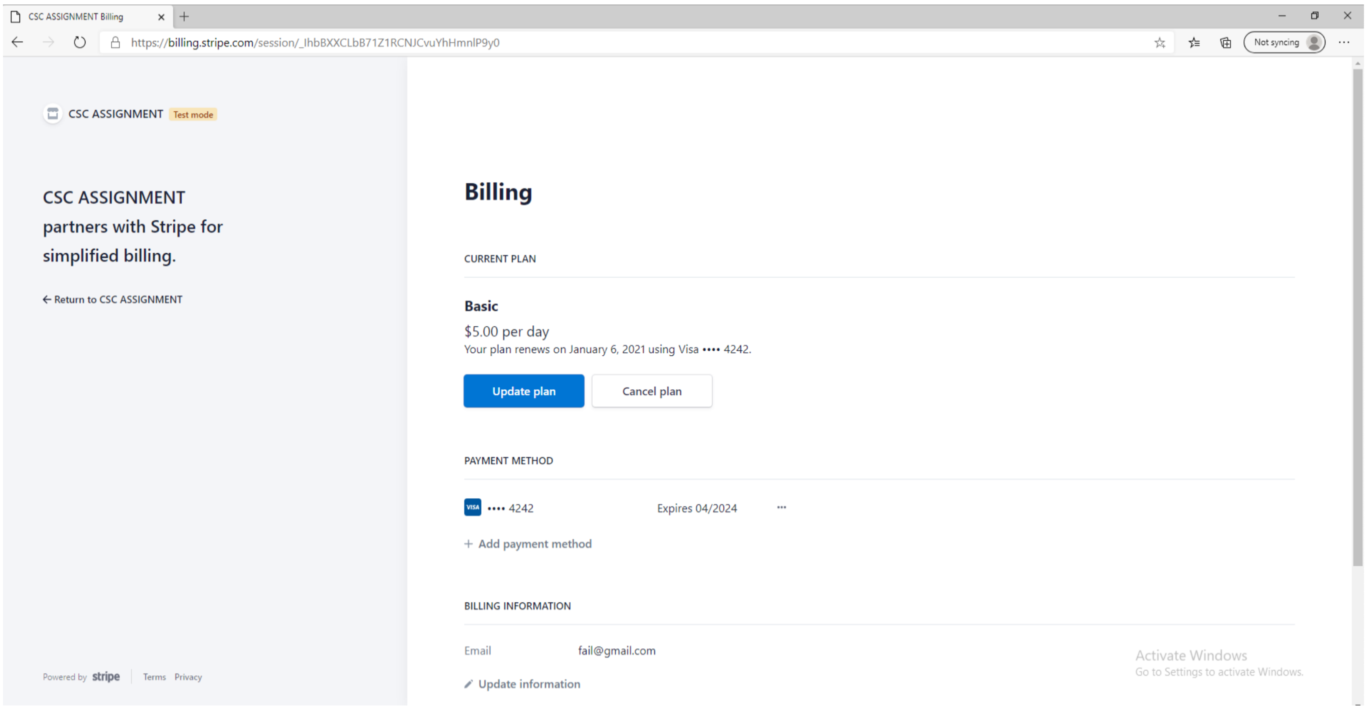
Subscription Status: active

Stripe Events

Type	Content	Date
customer.subscription.updated	{"id":"sub_IiNcGKpfNxg9hA","object":"subscription","application_fee_percent":null,"billing_cycle_anchor":1610019663,"billing_thresholds":null,"cancel_at":null,"cancel_at_period_end":false,"canceled_at":null,"collection_method":"charge_automatically","created":1610019663,"current_period_end":1610106063,"current_period_start":1610019663,"customer":"cus_IiKBXe4tLucRQm","days_until_due":null,"default_payment_method":"pm_1I6wrTAK7ZOy2EAT8Jf1DJh1","default_source":null,"default_tax_rates":[],"discount":null,"ended_at":null,"items":{"object":"list","data":[{"id":"si_IiNcakXtm4JEAC","object":"subscription_item","billing_thresholds":null,"created":1610019664,"metadata":{},"plan":{"id":"price_1Hzh2IAK7ZOy2EATPRfrm536","object":"plan","active":true,"aggregate_usage":null,"amount":500,"amount_decimal":"500","billing_scheme":"per_unit","created":1608290563,"currency":"sgd","interval":"day","interval_count":1,"livemode":false,"metadata":{},"nickname":null,"product":"prod_IasoGsvFXBIFSW","tiers_mode":null,"transform_usage":null,"trial_period_days":null,"usage_type":"licensed"},"price":{"id":"price_1Hzh2IAK7ZOy2EATPRfrm536","object":"price","active":true,"billing_scheme":"per_unit","created":1608290563,"currency":"sgd","livemode":false,"lookup_key":null,"metadata":{},"nickname":null,"product":"prod_IasoGsvFXBIFSW","recurring":{"aggregate_usage":null,"interval":"day","interval_count":1,"trial_period_days":null,"usage_type":"licensed"},"tiers_mode":null,"transform_quantity":null,"type":"recurring","unit_amount":500,"unit_amount_decimal":"500"},"quantity":1,"subscription":"sub_IiNcGKpfNxg9hA","tax_rates":[]}],"has_more":false,"total_count":1,"url":"/v1/subscription_items?subscription=sub_IiNcGKpfNxg9hA"},"latest_invoice":"in_1I6wrUAK7ZOy2EATdbfJzhqx","livemode":false,"metadata":{},"next_pending_invoice_item_invoice":null,"pause_collection":null,"pending_invoice_item_interval":null,"pending_setup_intent":null,"pending_update":null,"plan":{"id":"price_1Hzh2IAK7ZOy2EATPRfrm536","object":"plan","active":true,"aggregate_usage":null,"amount":500,"amount_decimal":"500","billing_scheme":"per_unit","created":1608290563,"currency":"sgd","interval":"day","interval_count":1,"livemode":false,"metadata":{},"nickname":null,"product":"prod_IasoGsvFXBIFSW","tiers_mode":null,"transform_usage":null,"trial_period_days":null,"usage_type":"licensed"},"quantity":1,"schedule":null,"start_date":1610019663,"status":"active","transfer_data":null,"trial_end":null,"trial_start":null}	2021-01-07T19:41:08.703
customer.subscription.created	{"id":"sub_IiNcGKpfNxg9hA","object":"subscription","application_fee_percent":null,"billing_cycle_anchor":1610019663,"billing_thresholds":null,"cancel_at":null,"cancel_at_period_end":false,"canceled_at":null,"collection_method":"charge_automatically","created":1610019663,"current_period_end":1610106063,"current_period_start":1610019663,"customer":"cus_IiKBXe4tLucRQm","days_until_due":null,"default_payment_method":"pm_1I6wrTAK7ZOy2EAT8Jf1DJh1","default_source":null,"default_tax_rates":[],"discount":null,"ended_at":null,"items":{"object":"list","data":[{"id":"si_IiNcakXtm4JEAC","object":"subscription_item","billing_thresholds":null,"created":1610019664,"metadata":{},"plan":{"id":"price_1Hzh2IAK7ZOy2EATPRfrm536","object":"plan","active":true,"aggregate_usage":null,"amount":500,"amount_decimal":"500","billing_scheme":"per_unit","created":1608290563,"currency":"sgd","interval":"day","interval_count":1	2021-01-07T19:41:07.81

Clicking the manage billing button will direct you to the self serve customer portal, which can be used to:

1. Upgrade Plan
2. Cancel Plan
3. Update payment information



CSC ASSIGNMENT partners with Stripe for simplified billing.

Billing

CURRENT PLAN

Basic

$5.00 per day

Your plan renews on January 6, 2021 using Visa •••• 4242.

PAYMENT METHOD

VISA •••• 4242 Expires 04/2024

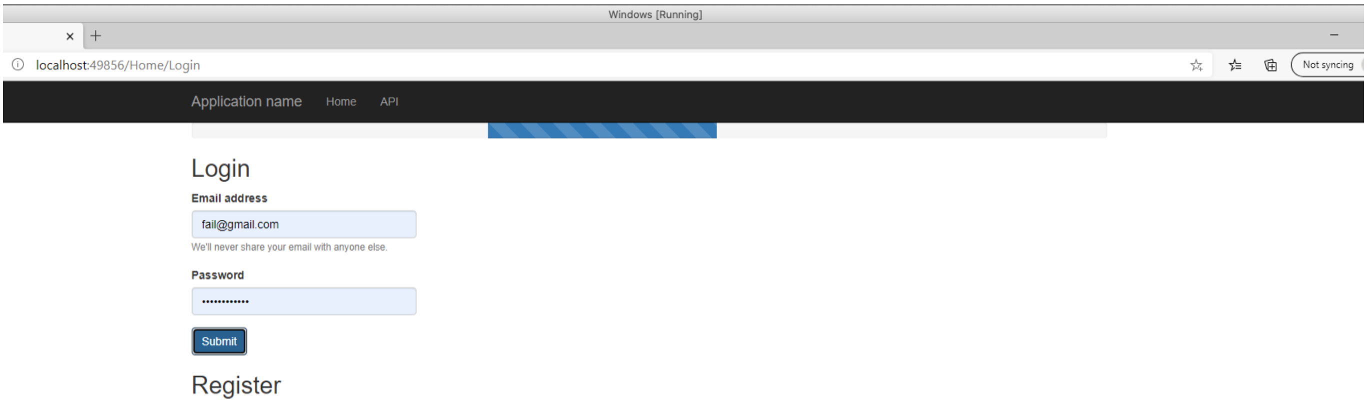
BILLING INFORMATION

Email fail@gmail.com

To test failed recurring charges, you can update the payment information to use the card `4000 0000 0000 0341`. See the Stripe documentation for the full list of cards used to test for specific errors: https://stripe.com/docs/testing#cards-responses.

Understanding, efficiency, robustness and security of the code

Loading bar is shown for login/register/generate a stripe checkout / self-serve portal session:



Login

Email address

fail@gmail.com

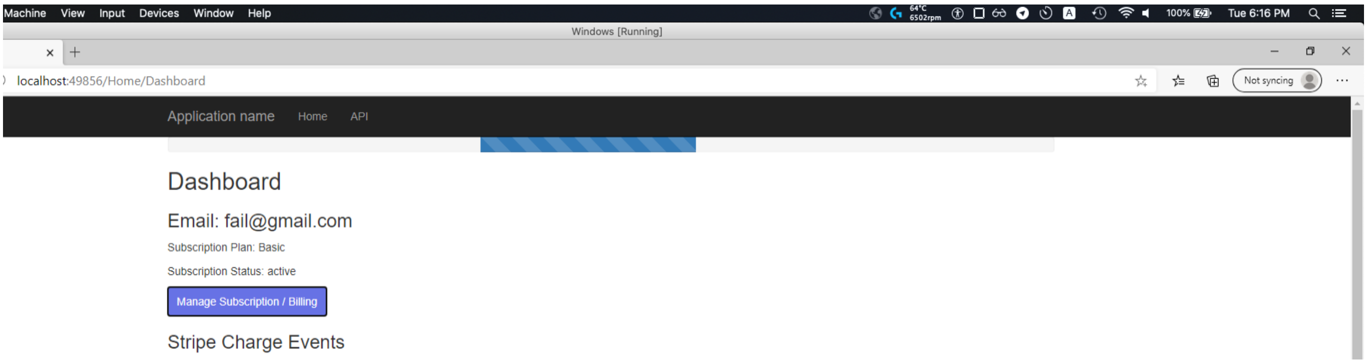
We'll never share your email with anyone else.

Password

••••••••••••

Submit

Register



Dashboard

Email: fail@gmail.com

Subscription Plan: Basic

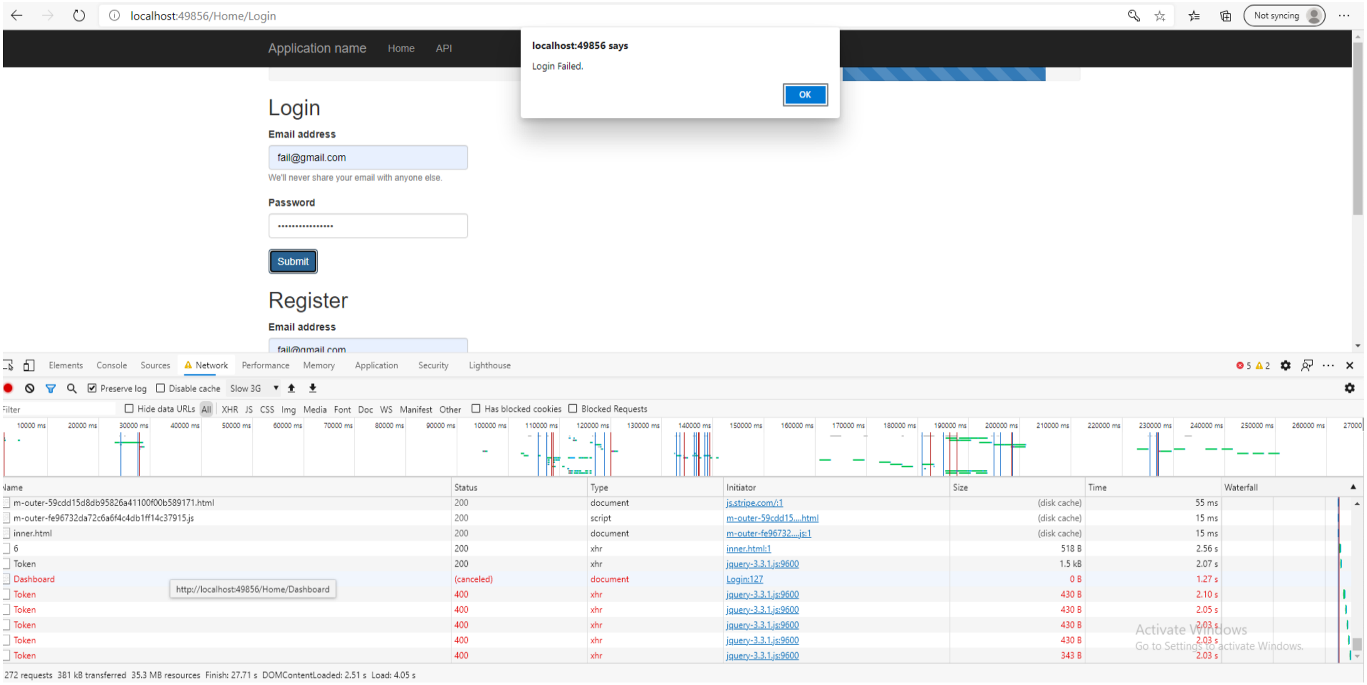
Subscription Status: active

Manage Subscription / Billing

Stripe Charge Events

The following APIs will retry up-to five times when they fail:

1. Login
2. Register
3. Generate Checkout Session (Basic + Premium)
4. Generate Self-Serve Portal Session.



localhost:49856 says

Login Failed.

OK

Login

Email address

fail@gmail.com

We'll never share your email with anyone else.

Password

•••••••••••••••

Submit

Register

Email address

fail@gmail.com

Name	Status	Type	Initiator	Size	Time
m-outer-59cdd15d8db95826a41100f00b589171.html	200	document	js.stripe.com/:1	(disk cache)	55 ms
m-outer-fe96732da72c6a6f4c4db1ff14c37915.js	200	script	m-outer-59cdd15....html	(disk cache)	15 ms
inner.html	200	document	m-outer-fe96732....js:1	(disk cache)	15 ms
6	200	xhr	inner.html:1	518 B	2.56 s
Token	200	xhr	jquery-3.3.1.js:9600	1.5 kB	2.07 s
Dashboard	(canceled)	document	Login:127	0 B	1.27 s
Token	400	xhr	jquery-3.3.1.js:9600	430 B	2.10 s
Token	400	xhr	jquery-3.3.1.js:9600	430 B	2.05 s
Token	400	xhr	jquery-3.3.1.js:9600	430 B	2.03 s
Token	400	xhr	jquery-3.3.1.js:9600	430 B	2.03 s
Token	400	xhr	jquery-3.3.1.js:9600	343 B	2.03 s

http://localhost:49856/Home/Dashboard

272 requests 381 kB transferred 35.3 MB resources Finish: 27.71 s DOMContentLoaded: 2.51 s Load: 4.05 s

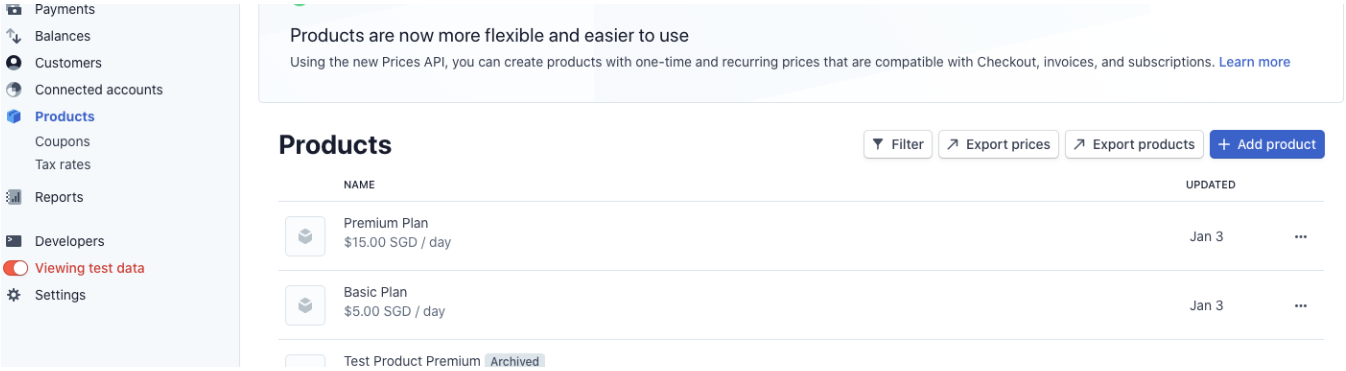
Set Up Guide

1. Create Products and Pricing

On the Products Page (https://dashboard.stripe.com/test/products), create two Products:

- Basic Plan
    - Price of $5/day
- Premium Plan
    - Price of $15/day

End Result:



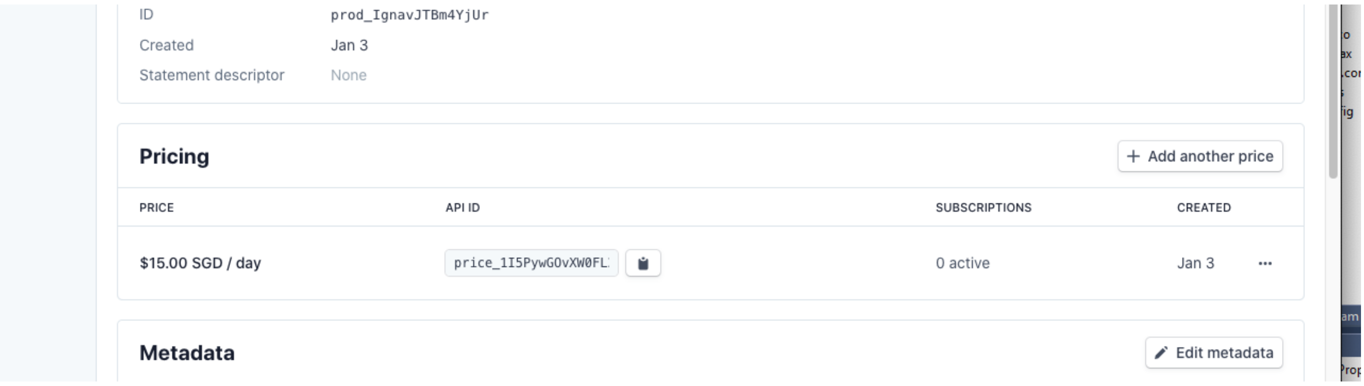
Products are now more flexible and easier to use

Using the new Prices API, you can create products with one-time and recurring prices that are compatible with Checkout, invoices, and subscriptions. Learn more

Products

NAME	UPDATED
Premium Plan $15.00 SGD / day	Jan 3
Basic Plan $5.00 SGD / day	Jan 3
Test Product Premium Archived	

Hold on to the pricing ID for both products, they will be used to configure the project:



ID	prod_IgnavJTBm4YjUr
Created	Jan 3
Statement descriptor	None

Pricing

PRICE	API ID	SUBSCRIPTIONS	CREATED
$15.00 SGD / day	price_1I5PywGOvXW0FL	0 active	Jan 3

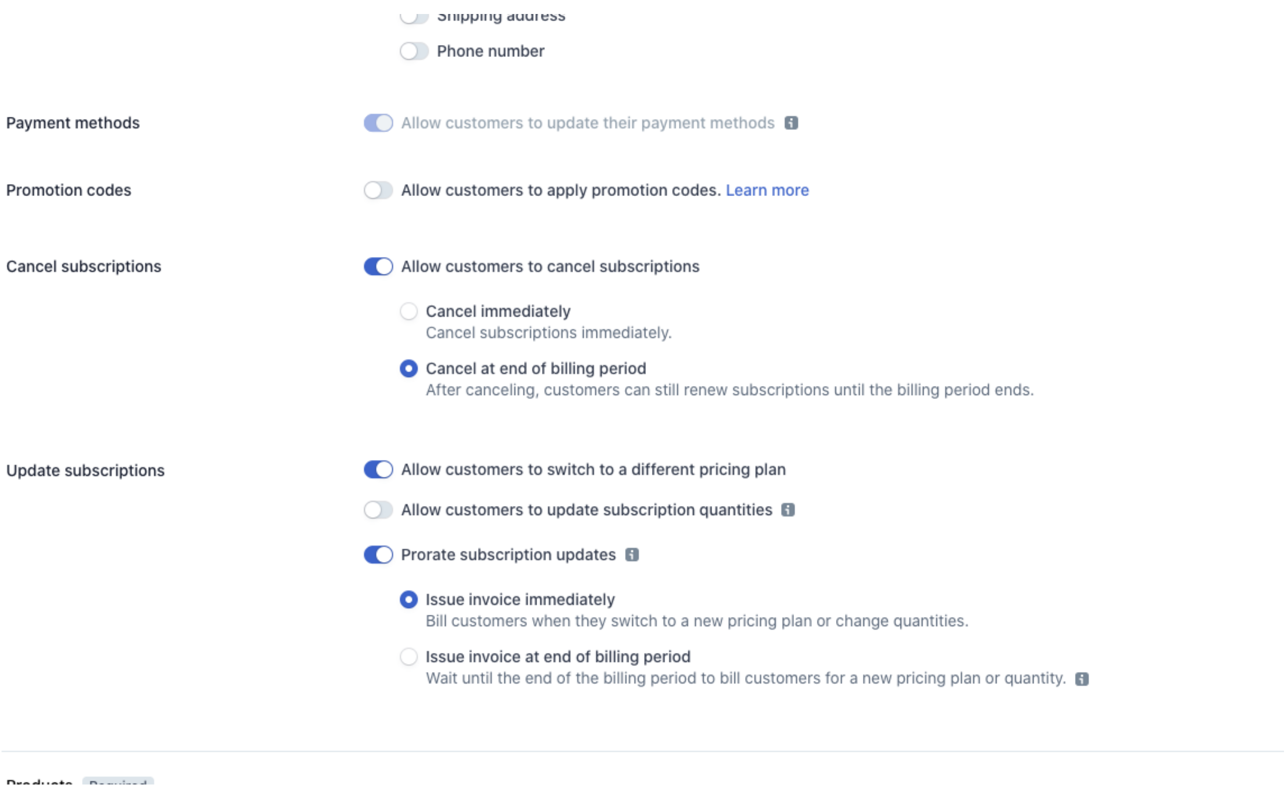
Metadata

2. Configure Billing Portal

Billing Settings Page: https://dashboard.stripe.com/test/settings/billing/portal

Enable the following options:

1. Payment methods: Allow customers to update their payment methods
2. Cancel subscriptions
3. Update subscriptions



○ Shipping address

○ Phone number

Payment methods — ● Allow customers to update their payment methods

Promotion codes — ○ Allow customers to apply promotion codes. Learn more

Cancel subscriptions — ● Allow customers to cancel subscriptions

○ Cancel immediately
Cancel subscriptions immediately.

● Cancel at end of billing period
After canceling, customers can still renew subscriptions until the billing period ends.

Update subscriptions — ● Allow customers to switch to a different pricing plan

○ Allow customers to update subscription quantities

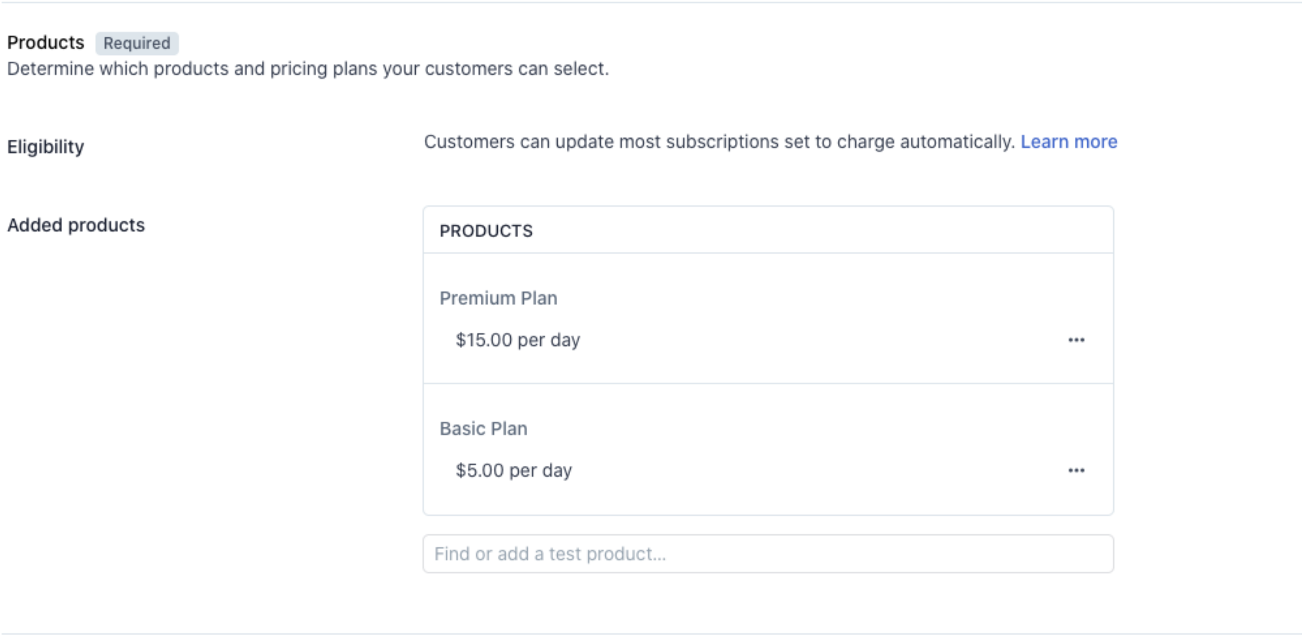
● Prorate subscription updates

● Issue invoice immediately
Bill customers when they switch to a new pricing plan or change quantities.

○ Issue invoice at end of billing period
Wait until the end of the billing period to bill customers for a new pricing plan or quantity.

Products Required

Add the two products to the portal:



Products Required
Determine which products and pricing plans your customers can select.

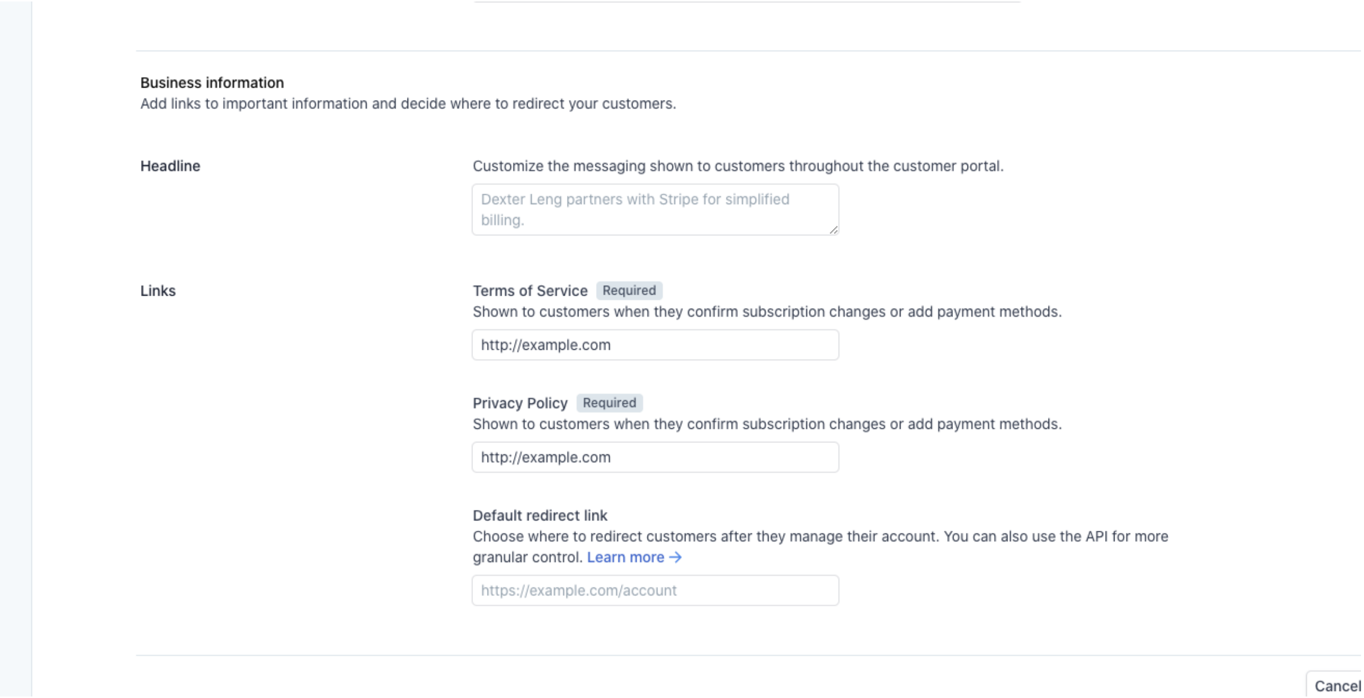
Eligibility — Customers can update most subscriptions set to charge automatically. Learn more

Added products

PRODUCTS
Premium Plan $15.00 per day
Basic Plan $5.00 per day

Find or add a test product...

Fill in the links with the appropriate fields. Since we are running it locally it can be a random URL:



Business information

Add links to important information and decide where to redirect your customers.

Headline

Customize the messaging shown to customers throughout the customer portal.

Dexter Leng partners with Stripe for simplified billing.

Links

Terms of Service Required

Shown to customers when they confirm subscription changes or add payment methods.

http://example.com

Privacy Policy Required

Shown to customers when they confirm subscription changes or add payment methods.

http://example.com

Default redirect link

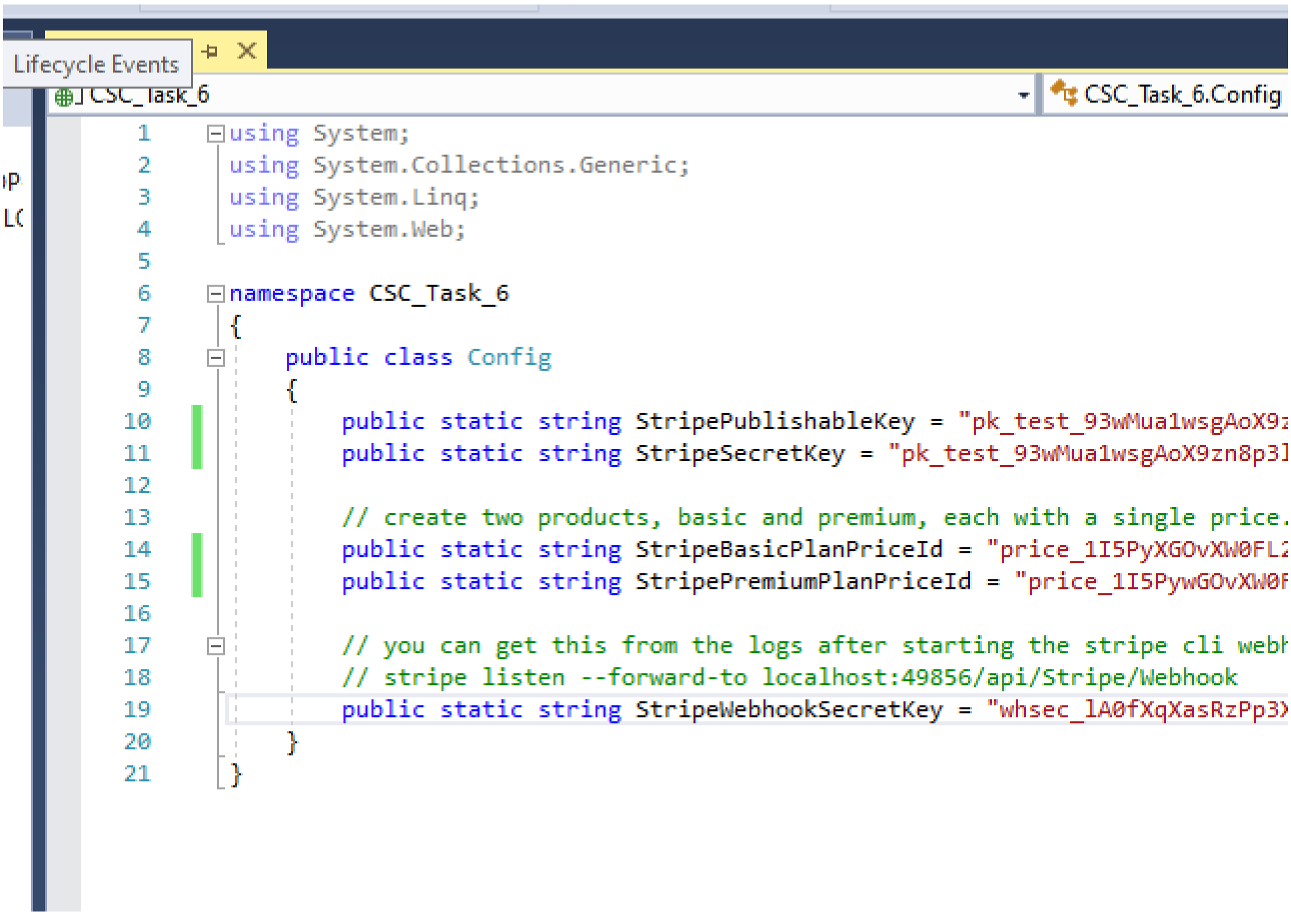
Choose where to redirect customers after they manage their account. You can also use the API for more granular control. Learn more →

https://example.com/account

Save Changes.

3. Configure and Start Project

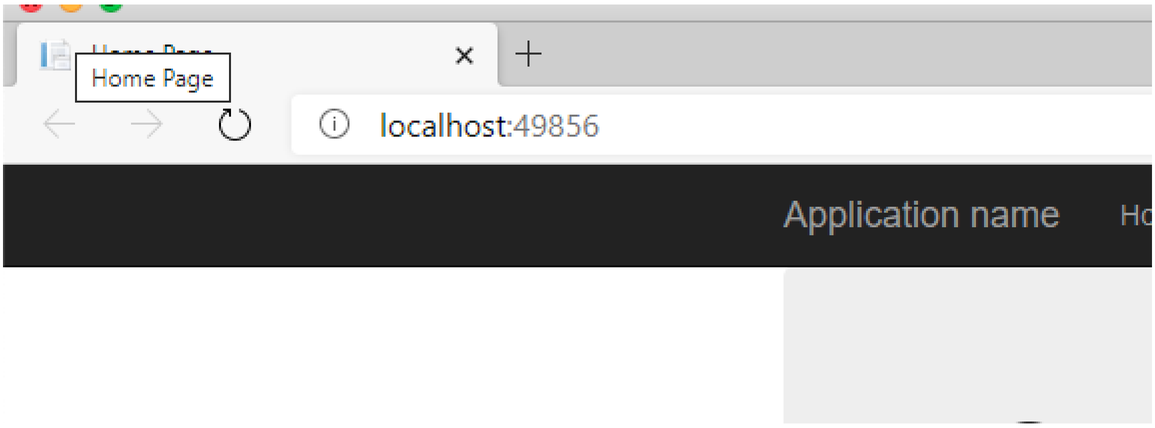
Open the Project with Visual Studio and open Config.cs:



```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;

namespace CSC_Task_6
{
    public class Config
    {
        public static string StripePublishableKey = "pk_test_93wMua1wsgAoX9z
        public static string StripeSecretKey = "pk_test_93wMua1wsgAoX9zn8p3]

        // create two products, basic and premium, each with a single price.
        public static string StripeBasicPlanPriceId = "price_1I5PyXGOvXW0FL2
        public static string StripePremiumPlanPriceId = "price_1I5PywGOvXW0F

        // you can get this from the logs after starting the stripe cli webh
        // stripe listen --forward-to localhost:49856/api/Stripe/Webhook
        public static string StripeWebhookSecretKey = "whsec_lA0fXqXasRzPp3X
    }
}
```

Fill in all the credentials except for `StripeWebhookSecretKey`.

Take note of the localhost port. In our case it is `49856`:



4. Forward Webhook Events to localhost

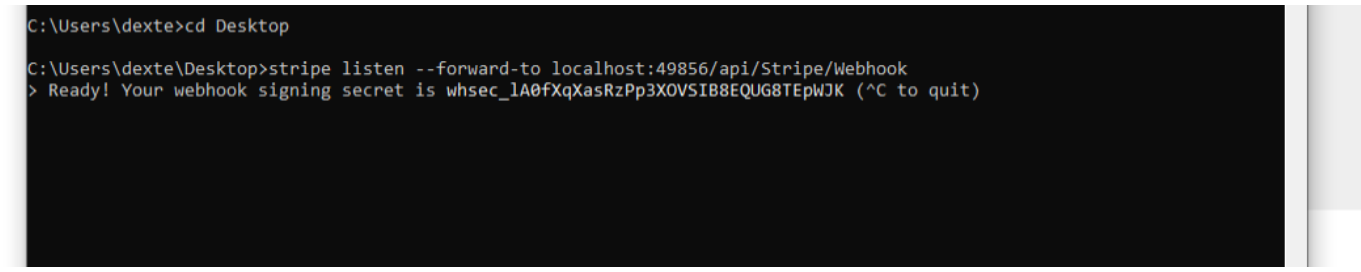
From: https://stripe.com/docs/webhooks/test

Install the Stripe CLI. See https://stripe.com/docs/webhooks/test

Run the following command to forward webhook events to the server:

```
stripe listen --forward-to localhost:49856/api/Stripe/Webhook
```

You should see the webhook secret printed in the terminal:



```
C:\Users\dexte>cd Desktop

C:\Users\dexte\Desktop>stripe listen --forward-to localhost:49856/api/Stripe/Webhook
> Ready! Your webhook signing secret is whsec_1A0fXqXasRzPp3XOVSIB8EQUG8TEpWJK (^C to quit)
```

Add the secret to Config.cs and restart the project.

The server should now receive webhook events.