

# Lab 7

CS50 for MBAs

[carterzenke.me/lab](https://carterzenke.me/lab)



Survey

Search Google or type a URL

Guest

Survey Form Sheet

# CS50 for MBAs

## End-of-Semester Feedback

Name

Which technology did you like the best?

Python

SQL

HTML and CSS

How much prior programming experience would you say you have? ▾

Submit

The image shows a web browser window with a single tab titled 'Survey'. The address bar contains the text 'Search Google or type a URL'. The user is logged in as 'Guest'. The page has a blue header with the text 'Survey Form Sheet'. The main content area features a large heading 'Sheet' followed by a table with three columns: 'Name', 'Likes', and 'Experience'. The table contains five rows of data.

Name	Likes	Experience
Carter	Python	None
Alyssa	HTML and CSS	A little
Matthew	SQL	A lot
Cecelia	Python	A lot

```
wget https://cdn.cs50.net/hbs/2023/spring/labs/7/survey.zip
```



# Routes and Requests



https://survey.com/  
protocol

https://survey.com/  
domain

<https://survey.com/>  
\_  
route

# Routes

- Routes can define pages of your web application.  
For example,
  - /
  - /about-us
  - /register
  - /submit

/

/form

/sheet

http-server

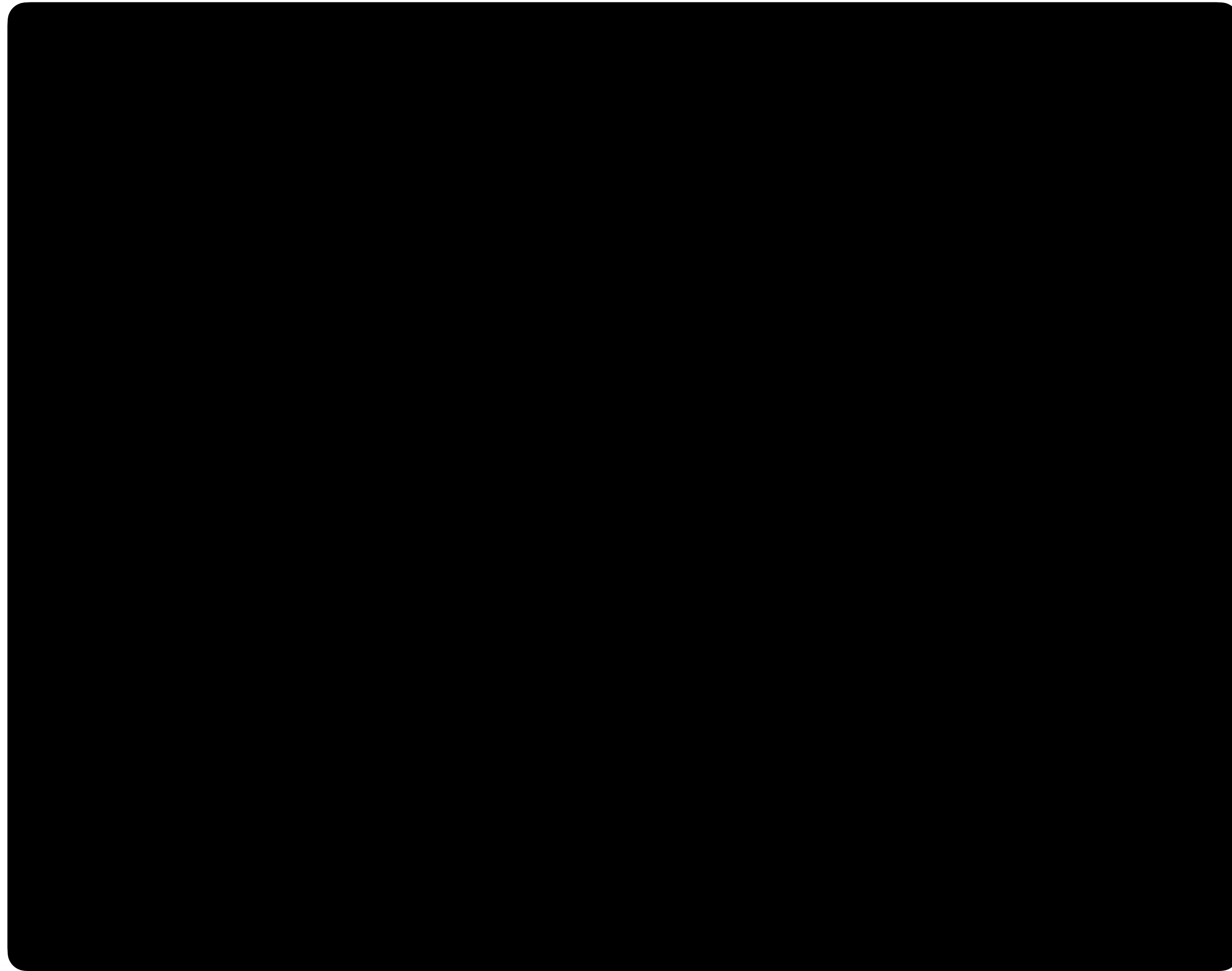
```
flask run
```

# Flask

- Flask can **listen for requests** to a certain route.
- Flask can **execute Python code** depending on the route requested.
- Flask can **render HTML files** depending on the route requested.



application.py



application.py

```
from flask import Flask
```

```
app = Flask(__name__)
```

```
@app.route("/")
```

```
def index():
```

```
    ...
```

application.py

```
from flask import Flask

app = Flask(__name__)

@app.route("/")
def index():
    return "Hello, world!"
```

application.py

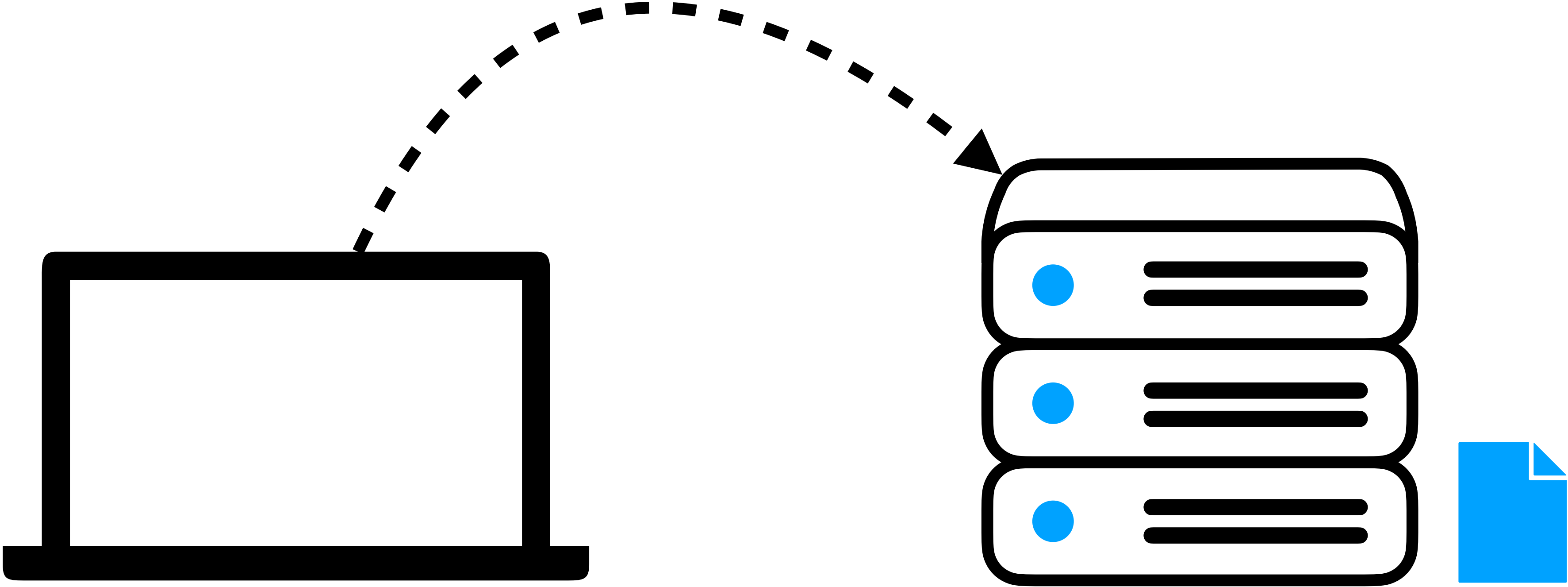
```
from flask import Flask, render_template

app = Flask(__name__)

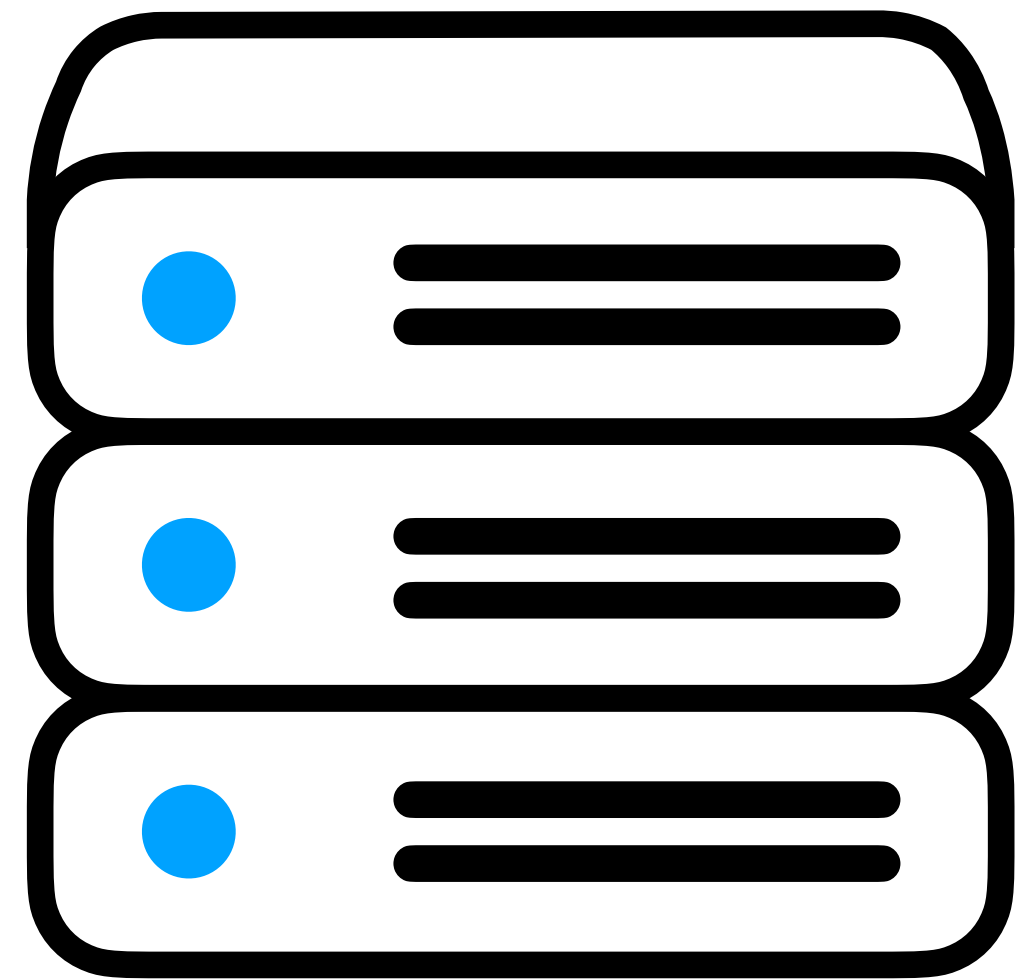
@app.route("/")
def index():
    return render_template("index.html")
```

# Request Methods

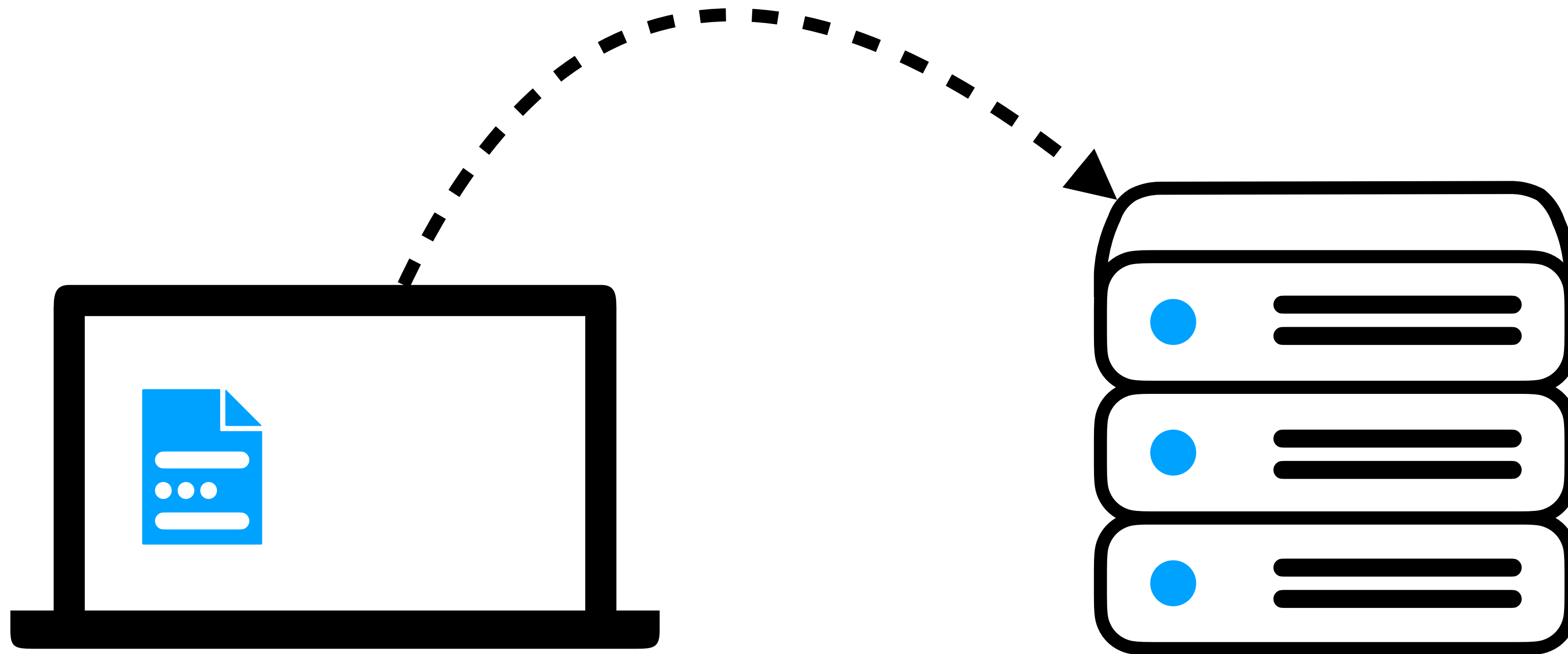
- Browsers can use different methods to request a route.



**GET requests**

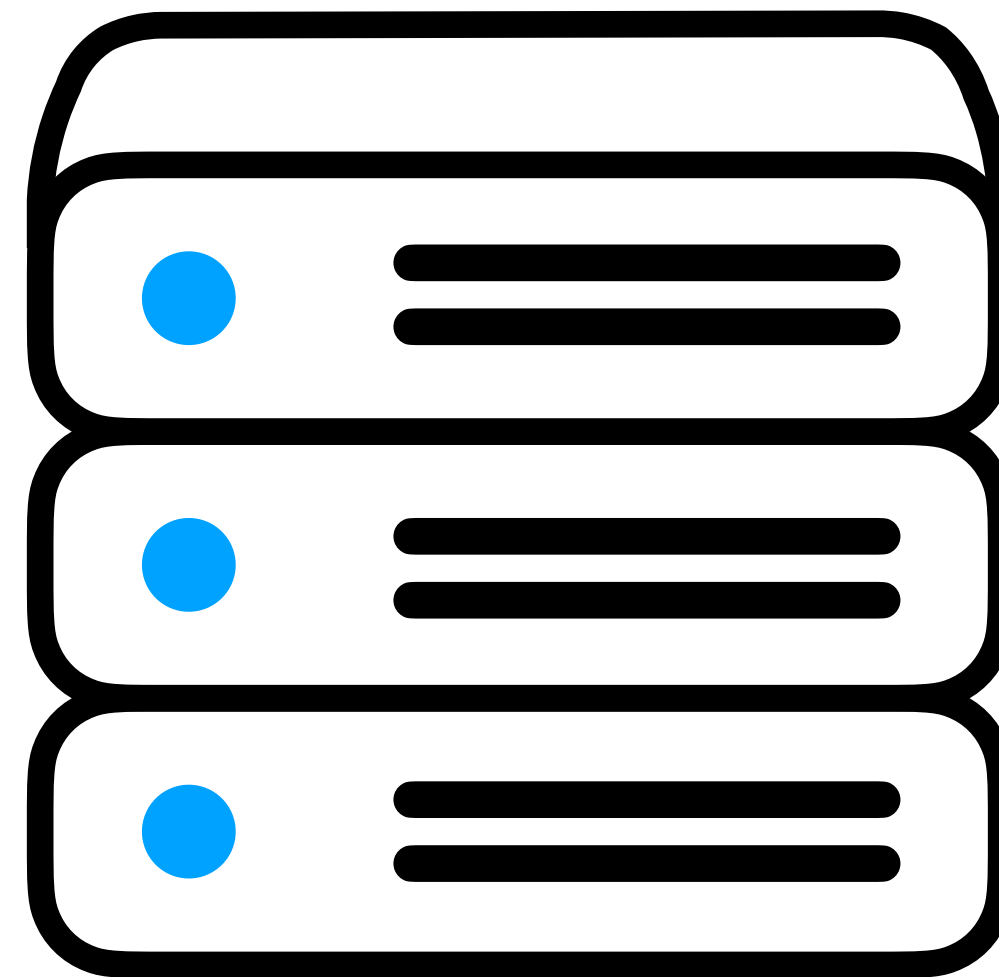


**GET requests**



**POST requests**





**POST requests**

# Templates

(And template inheritance)

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Survey</title>
  </head>
  <body>
    Please take our survey!
  </body>
</html>
```

form.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Survey</title>
  </head>
  <body>
    <form>
      <input type="text">
    </form>
  </body>
</html>
```

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Survey</title>
  </head>
  <body>
    Please take our survey!
  </body>
</html>
```

form.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Survey</title>
  </head>
  <body>
    <form>
      <input type="text">
    </form>
  </body>
</html>
```

## layout.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Survey</title>
  </head>
  <body>
    {% block content %}
    {% endblock %}
  </body>
</html>
```

## index.html

```
{% extends "layout.html" %}

{% block content %}
  Please take our survey!
{% endblock %}
```

## layout.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Survey</title>
  </head>
  <body>
    {% block content %}
    {% endblock %}
  </body>
</html>
```

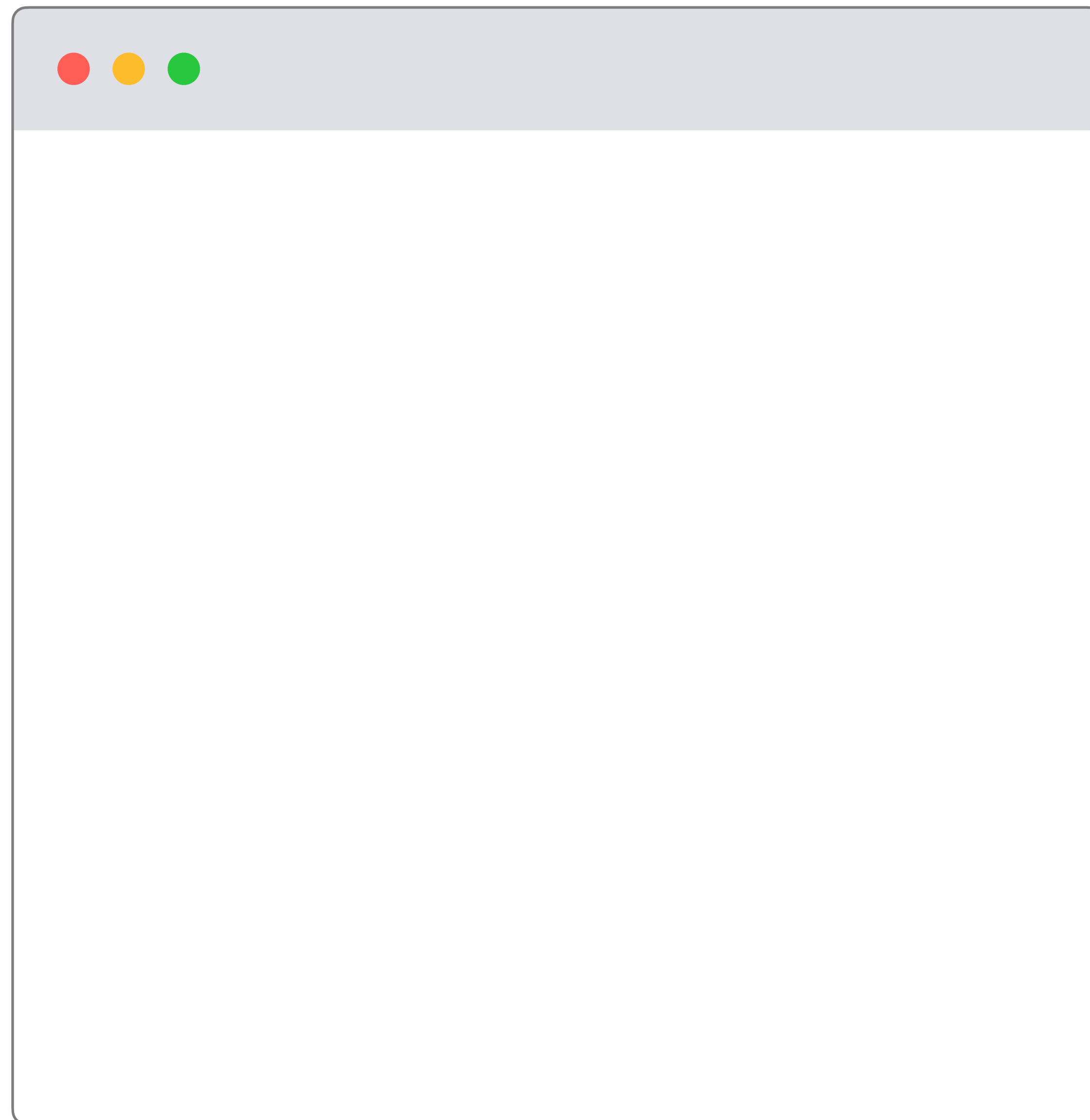
## form.html

```
{% extends "layout.html" %}

{% block content %}
  <form>
    <input type="text">
  </form>
{% endblock %}
```

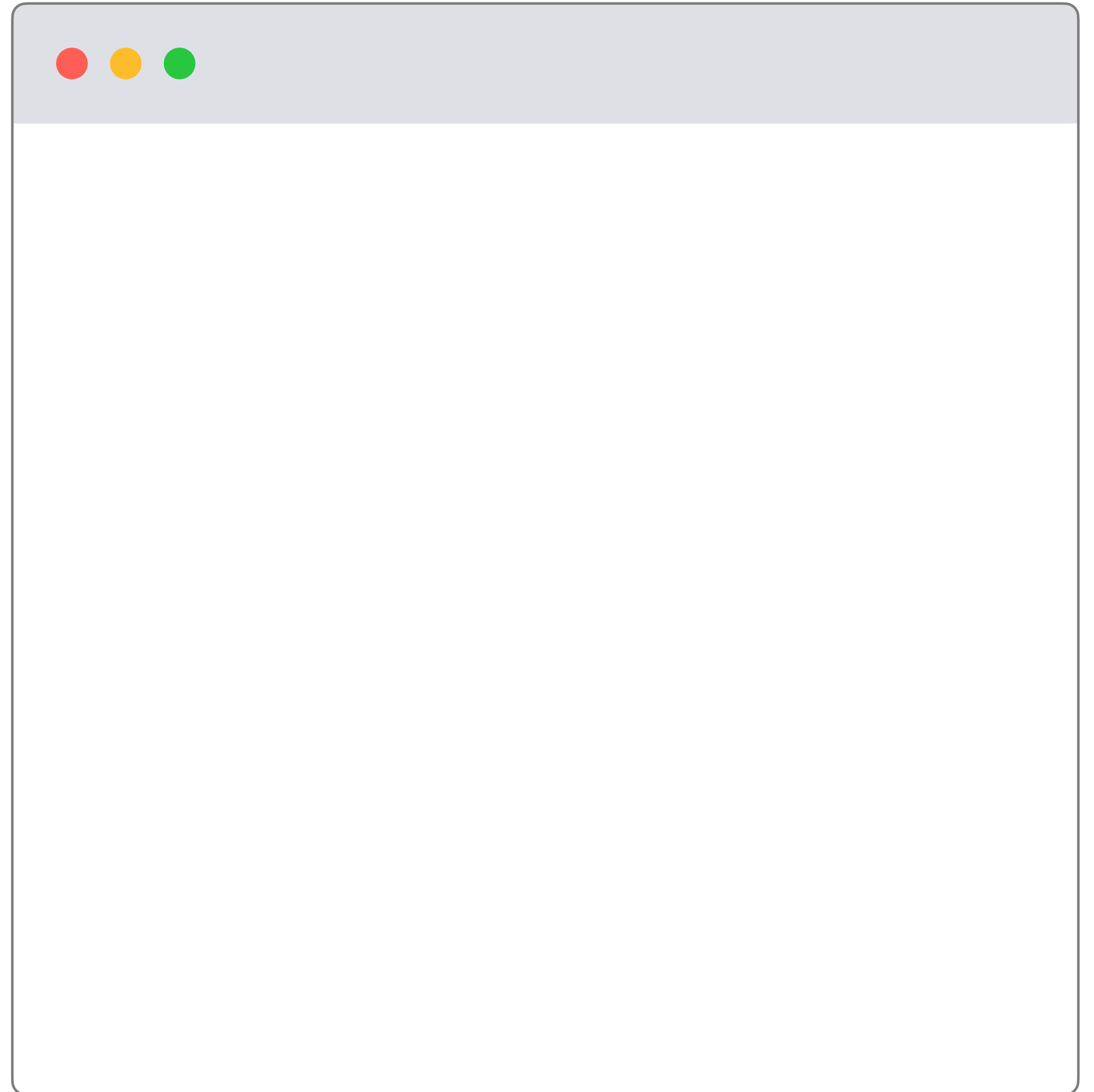
# Forms

```
<form>  
</form>
```

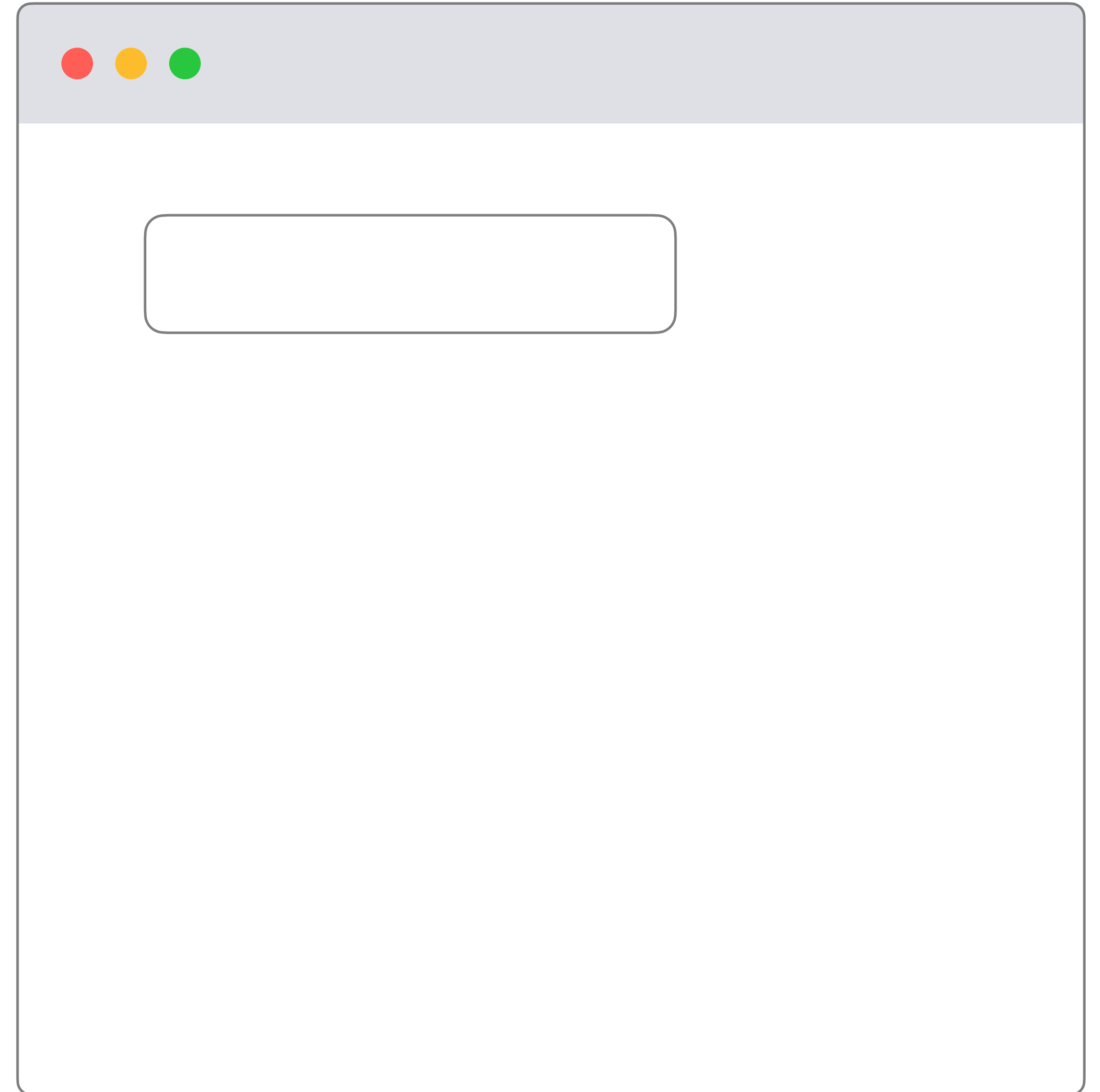




```
<form>  
  <input type="text">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

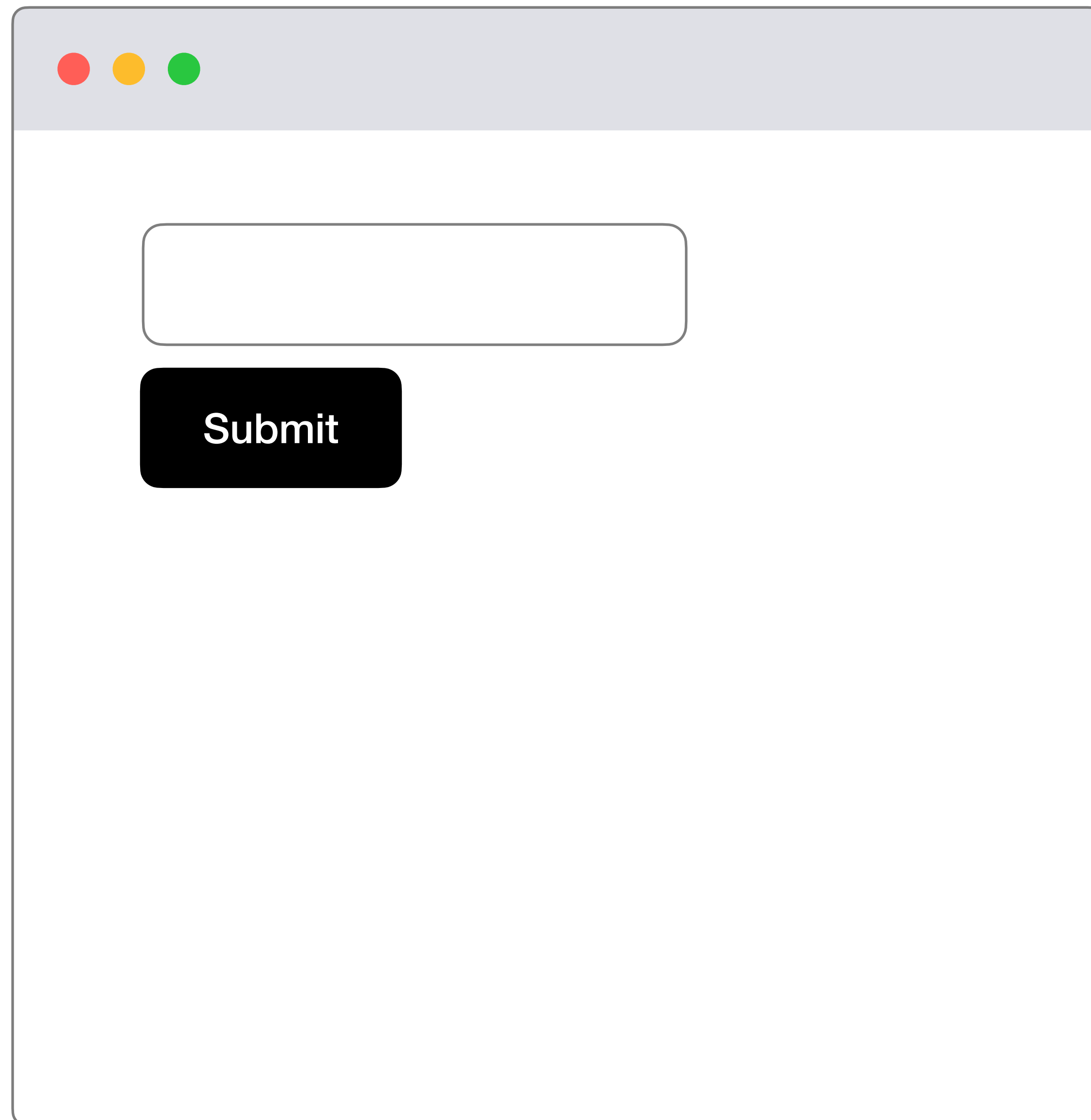


```
<form>  
  <input type="text">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```



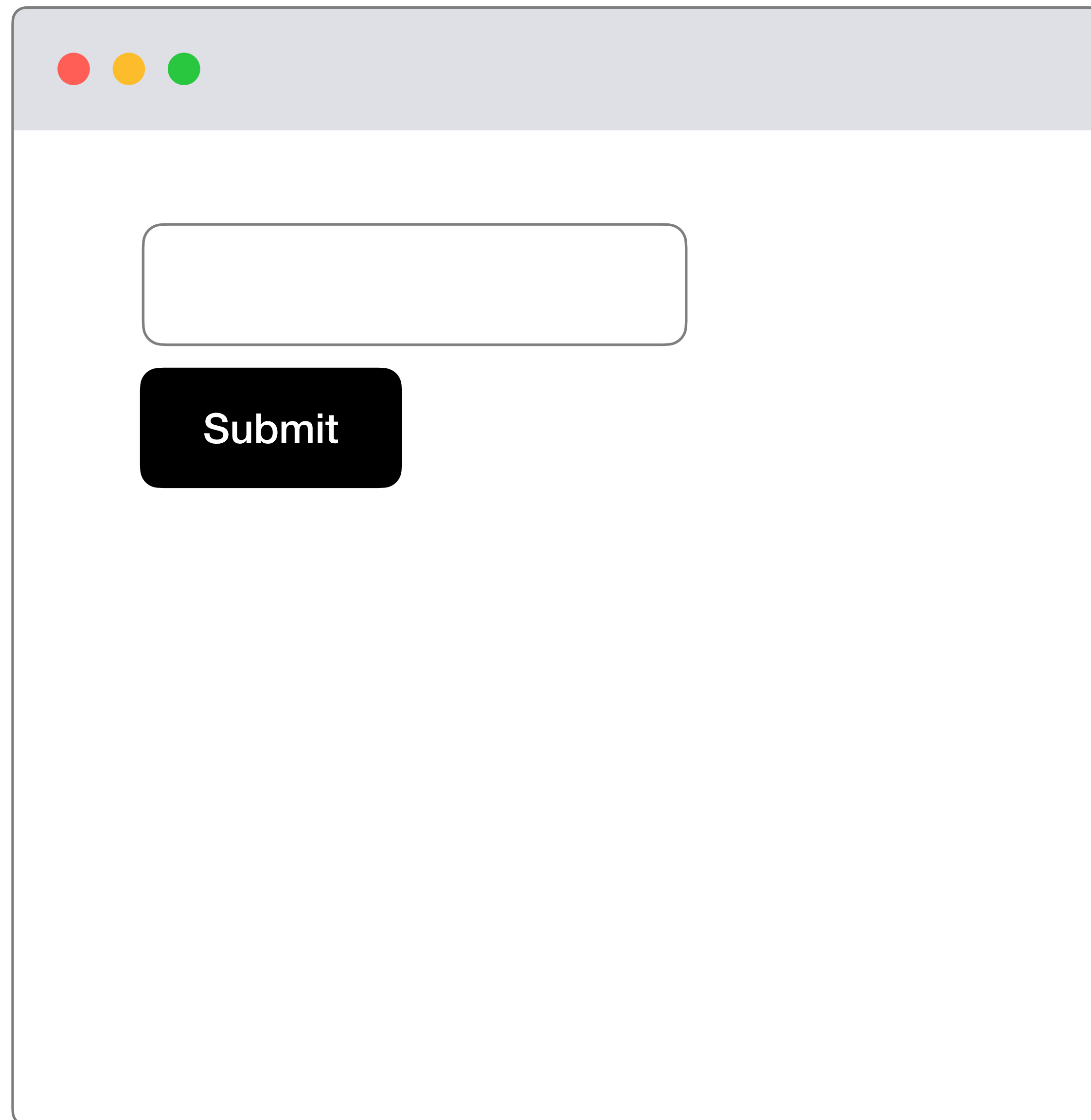
A browser window with a light gray title bar containing three colored window control buttons (red, yellow, green). The main content area is white and displays a simple form consisting of a single text input field with rounded corners and a light gray border, positioned in the upper left quadrant of the page.

```
<form>
  <input type="text">
  <button type="submit">
    Submit
  </button>
</form>
```



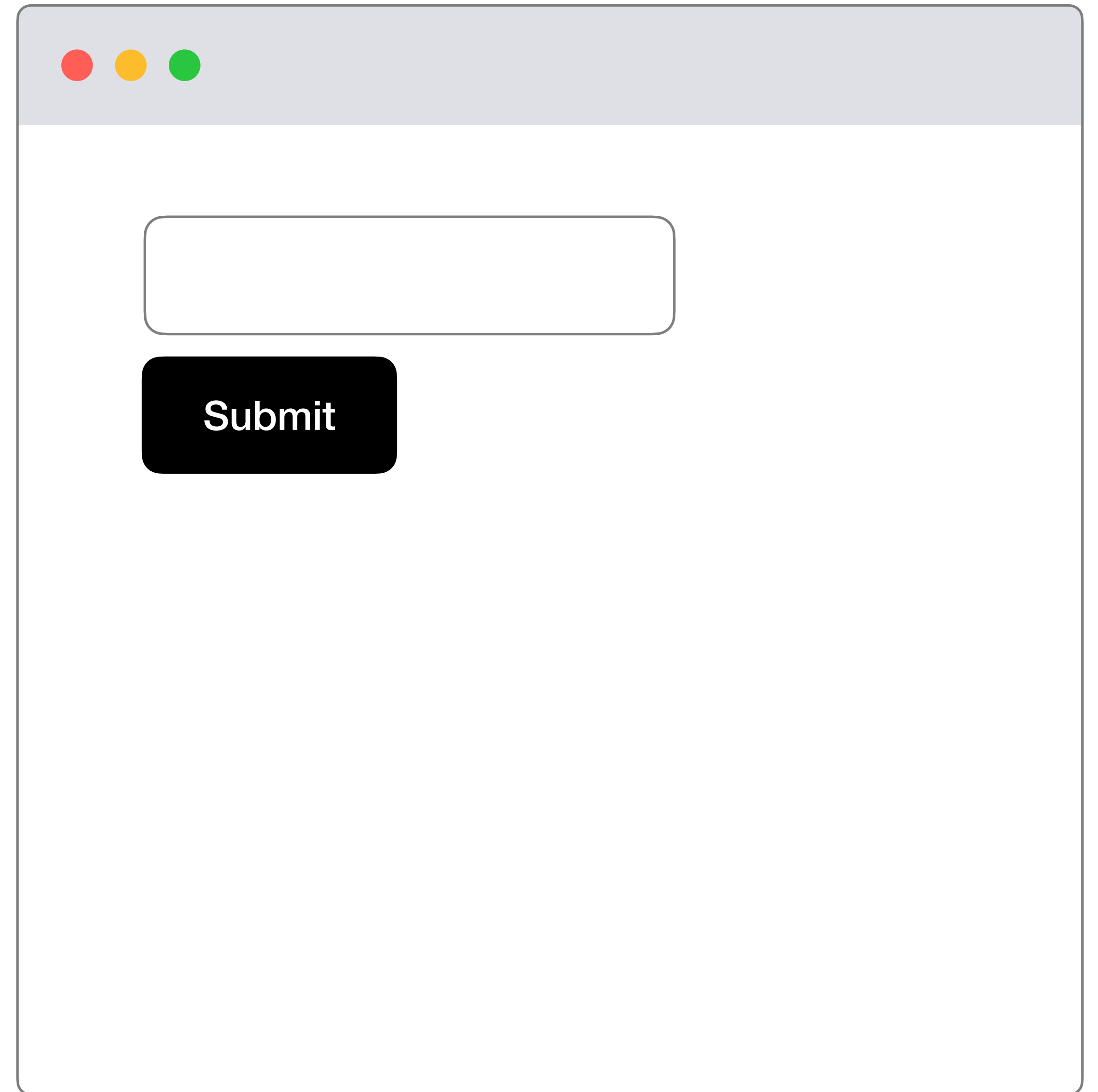
A browser window with a light gray title bar containing three colored window control buttons (red, yellow, green). The main content area is white and contains a simple form. At the top of the form is a white text input field with rounded corners and a thin gray border. Below the input field is a black button with rounded corners and the word "Submit" written in white text.

```
<form>
  <input type="text">
  <button type="submit">
    Submit
  </button>
</form>
```



A browser window with a light gray title bar containing three colored window control buttons (red, yellow, green). The main content area is white and contains a simple form. At the top of the form is a white text input field with rounded corners and a thin gray border. Below the input field is a black button with rounded corners and the word "Submit" written in white text.

```
<form action="/" method="post">  
  <input type="text">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

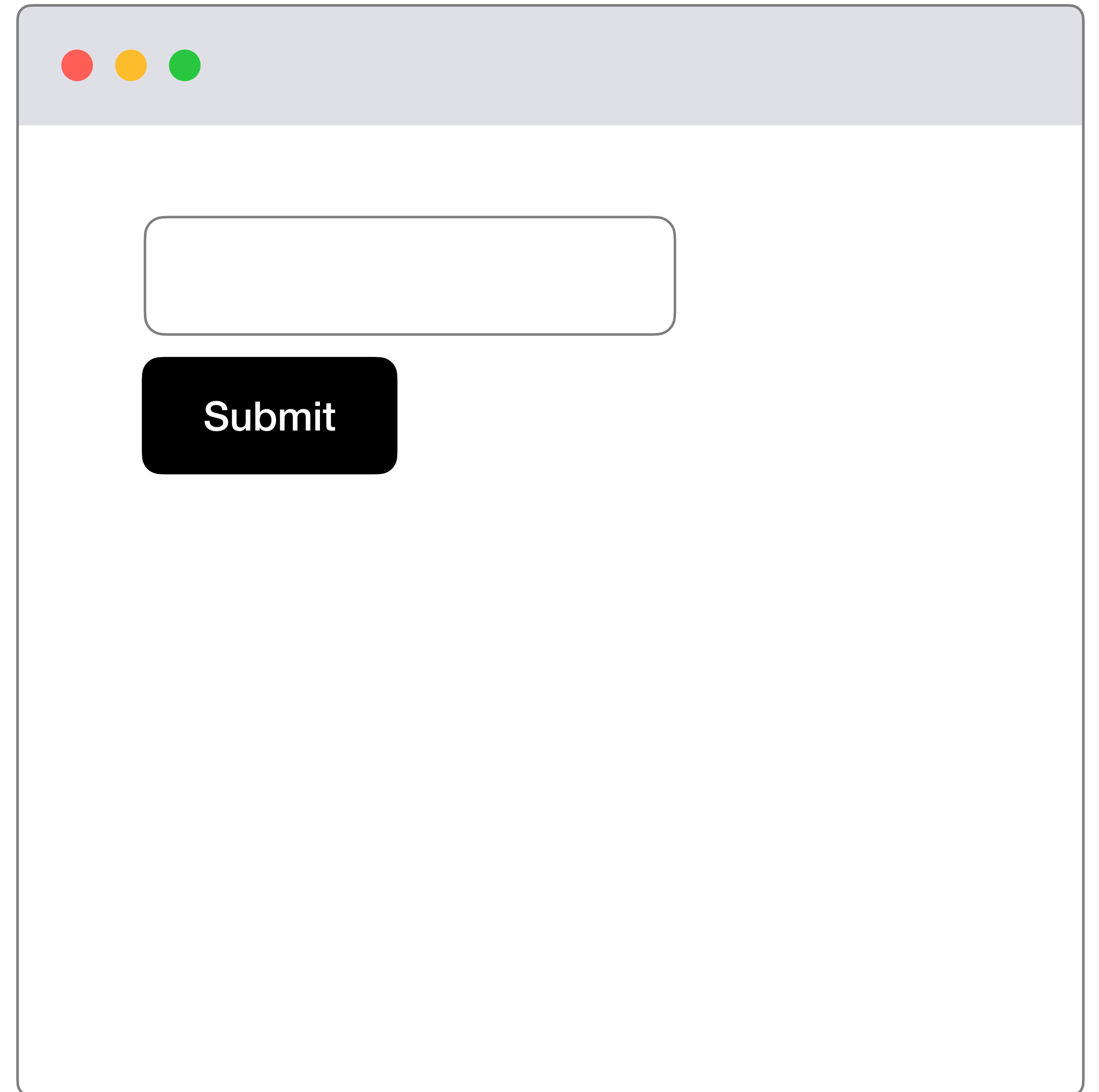


A browser window with a light gray title bar containing three window control buttons (red, yellow, green). The main content area is white and contains a form with a single text input field and a black button labeled "Submit".

# Route to request



```
<form action="/" method="post">  
  <input type="text">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```



A browser window with a light gray title bar containing three colored window control buttons (red, yellow, green). The main content area is white and contains a form with a single text input field and a black button labeled "Submit".

# Request method



```
<form action="/" method="post">  
  <input type="text">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

A browser window mockup with a light gray title bar containing three colored window control buttons (red, yellow, green). The main content area is white and contains a single text input field with rounded corners and a thin gray border. Below the input field is a black button with rounded corners and the word "Submit" written in white text.

## Python

```
request.form.get("email")
```

## HTML

```
<form action="/" method="post">  
  <input name="email">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```



# HTML Form Elements

- `<input>`
  - `<input type="text">`
  - `<input type="radio">`
  - `<input type="checkbox">`

# HTML Form Elements

- `<select>`
- `<option>`

# **Form Validation**

(Client- and Server-side)

## Python

```
request.form.get("email")
```

## HTML

```
<form action="/" method="post">  
  <input name="email">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

application.py

```
@app.route("/form", methods=["POST"])  
def post_form():  
    email = request.form.get("email")
```

application.py

```
@app.route("/form", methods=["POST"])  
def post_form():  
    email = request.form.get("email")  
  
    # Save email to database
```

application.py

```
@app.route("/form", methods=["POST"])
def post_form():
    email = request.form.get("email")

    # Validate form
    if not email:

        # Show error to user

    # Save email to database
```

application.py

```
@app.route("/form", methods=["POST"])
def post_form():
    email = request.form.get("email")

    # Validate form
    if not email:

        # Show error to user
        return render_template("error.html")

    # Save email to database
```



## Python

```
request.form.get("email")
```

## HTML

```
<form action="/" method="post">  
  <input name="email">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

form.html

```
<form action="/" method="post">  
  <input name="email">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

form.html

```
<form action="/" method="post">  
  <input name="email" type="text">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

form.html

```
<form action="/" method="post">  
  <input name="email" type="email">  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

form.html

```
<form action="/" method="post">  
  <input name="email" type="email" required>  
  <button type="submit">  
    Submit  
  </button>  
</form>
```

# Submission

- **Submit code files to Gradescope** by Friday, February 24, 3:10 PM.
- Graded based on completion, but please double check to be sure your files are named correctly:
  - application.py **not** application (1).py