

Material Design Lite

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About the Tutorial

Material Design Lite, MDL is a UI component library created with CSS, JavaScript, and HTML. MDL UI components helps in constructing attractive, consistent, and functional web pages and web apps while adhering to modern web design principles like browser portability, device independence, and graceful degradation. It helps in creating faster, beautiful, and responsive websites. It is inspired from the Google Material Design.

Audience

This tutorial is designed for professionals who aspire to learn the basics of Material Design Lite and how to use it to create faster, beautiful, and responsive websites. The tutorial explains all the fundamental concepts of Material Design Lite.

Prerequisites

Before proceeding with this tutorial, you should have a basic understanding of HTML, CSS, JavaScript, Document Object Model (DOM), and any text editor. In addition, it will help if you know how web-based applications work.

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1. MATERIAL DESIGN LITE – OVERVIEW

What is Material Design Lite?

Material Design Lite (MDL) is a UI component library created with CSS, JavaScript, and HTML. The MDL UI components help in constructing attractive, consistent, and functional web pages and web apps while adhering to modern web design principles like browser portability, device independence, and graceful degradation.

Following are the salient features of Material Design Lite:

- In-built responsive designing.
- Standard CSS with minimal footprint.
- Includes new versions of common user interface controls such as buttons, check boxes, and text fields which are adapted to follow Material Design concepts.
- Includes enhanced and specialized features like cards, column layouts, sliders, spinners, tabs, typography, and so on.
- Can be used with or without any library or development environment.
- Cross-browser, and can be used to create reusable web components.

Responsive Design

- Material Design Lite has in-built responsive designing so that the website created using Material Design Lite will redesign itself as per the device size.
- Material Design Lite classes are created in such a way that the website can fit any screen size.
- The websites created using Material Design Lite are fully compatible with PC, tablets, and mobile devices.

Standard CSS

- Material Design Lite uses standard CSS only and it is very easy to learn.
- There is no dependency on any external JavaScript library such as jQuery.
- ExtensibleMaterial Design Lite is by design very minimal and flat.
- It is designed considering the fact that it is much easier to add new CSS rules than to overwrite existing CSS rules.
- It supports shadows and bold colors.
- The colors and shades remain uniform across various platforms and devices.

And most important of all, MDL is absolutely free to use.

2. MATERIAL DESIGN LITE – ENVIRONMENT SETUP

There are two ways to use Material Design Lite:

- **Local Installation** - You can download the `material.{primary}-{accent}.min.css` and `material.min.js` files on your local machine and include it in your HTML code.
- **CDN Based Version** - You can include the `material.{primary}-{accent}.min.css` and `material.min.js` files into your HTML code directly from the Content Delivery Network (CDN).

Local Installation

Follow these steps for the installation of MDL:

- Go to <http://www.getmdl.io/started/index.html> to download the latest version available.
- Then, put the downloaded **material.min.js** file in a directory of your website, e.g. `/js` and **material.min.css** in `/css`.

Example

Now you can include the `css` and `js` file in your HTML file as follows –

```
<html>
  <head>
    <title>The Material Design Lite Example</title>
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet" href="material.min.css">
    <script src="material.min.js"></script>
    <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons">
  </head>
  <body>
    <div class="mdl-layout mdl-js-layout mdl-layout--fixed-drawer">
      <div class="mdl-layout__drawer">
        <span class="mdl-layout-title">Material Design</span>
        <nav class="mdl-navigation">
          <a class="mdl-navigation__link" href="">Home</a>
          <a class="mdl-navigation__link" href="">Features</a>
        </nav>
      </div>
    </div>
  </body>
</html>
```

```

        <a class="mdl-navigation__link" href="">About Us</a>
        <a class="mdl-navigation__link" href="">Log Out</a>
    </nav>
</div>
<main class="mdl-layout__content">
    <div class="page-content" style="padding-left:100px;">Hello World!</div>
</main>
</div>
</body>
</html>

```

The above program will generate the following result –



CDN Based Version

You can include the js and css files into your HTML code directly from the Content Delivery Network (CDN). **storage.googleapis.com** provides content for the latest version.

We are using storage.googleapis.com CDN version of the library throughout this tutorial.

Example

Now, let us rewrite the above example using material.css and material.js from the Google CDN.

```

<html>
  <head>
    <title>The Material Design Lite Example</title>
    <meta name="viewport" content="width=device-width, initial-scale=1">

```



```

    <link rel="stylesheet"
href="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.indigo-pink.min.css">
    <script src="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.min.js"></script>
    <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons">
</head>
<body>
  <div class="mdl-layout mdl-js-layout mdl-layout--fixed-drawer">
    <div class="mdl-layout__drawer">
      <span class="mdl-layout-title">Material Design</span>
      <nav class="mdl-navigation">
        <a class="mdl-navigation__link" href="">Home</a>
        <a class="mdl-navigation__link" href="">Features</a>
        <a class="mdl-navigation__link" href="">About Us</a>
        <a class="mdl-navigation__link" href="">Log Out</a>
      </nav>
    </div>
    <main class="mdl-layout__content">
      <div class="page-content">Hello World!</div>
    </main>
  </div>
</body>
</html>

```

The above program will generate the following result –



3. MATERIAL DESIGN LITE – LAYOUTS

In this chapter, we will discuss the different layouts in Material Design Lite. HTML5 has the following container elements:

- **<div>** - Provides a generic container to HTML content.
- **<header>** - Represents the header section.
- **<footer>** - Represents the footer section.
- **<article>** - Represents articles.
- **<section>** - Provides a generic container for various types of sections.

MDL provides various CSS classes to apply various predefined visual and behavioral enhancements to the containers. The following table lists down the available classes and their effects.

S.NO.	Class Name & Description
1	mdl-layout Identifies a container as an MDL component. Required on outer container element.
2	mdl-js-layout Adds basic MDL behavior to layout. Required on outer container element.
3	mdl-layout__header Identifies container as an MDL component. Required on header element.
4	mdl-layout-icon Used to add an application icon. Gets overridden by menu icon if both are visible. Optional icon element.
5	mdl-layout__header-row Identifies container as MDL header row. Required on header content container.
6	mdl-layout__title Identifies layout title text. Required on layout title container.
7	mdl-layout-spacer Used to align elements inside a header or drawer. It grows to fill remaining space. Commonly used for aligning elements to the right. Optional on div following layout title.

8	mdl-navigation Identifies container as MDL navigation group. Required on nav element.
9	mdl-navigation__link Identifies anchor as MDL navigation link. Required on header and/or drawer anchor elements.
10	mdl-layout__drawer Identifies container as MDL layout drawer. Required on drawer container element.
11	mdl-layout__content Identifies container as MDL layout content. Required on main element.
12	mdl-layout__header--scroll Makes the header scroll with the content. Optional on header element.
13	mdl-layout--fixed-drawer Makes the drawer always visible and open in larger screens. Optional on outer container element and not on drawer container element.
14	mdl-layout--fixed-header Makes the header always visible, even in small screens. Optional on outer container element.
15	mdl-layout--large-screen-only Hides an element on smaller screens. Optional on any descendant of mdl-layout.
16	mdl-layout--small-screen-only Hides an element on larger screens. Optional on any descendant of mdl-layout.
17	mdl-layout__header--waterfall Allows a "waterfall" effect with multiple header lines. Optional on header element.
18	mdl-layout__header--transparent Makes header transparent and draws on top of layout background. Optional on header element.
19	mdl-layout__header--seamed Uses a header without a shadow. Optional on header element.
20	mdl-layout__tab-bar Identifies container as an MDL tab bar. Required on container element inside header (tabbed layout).

21	mdl-layout__tab Identifies anchor as MDL tab link. Required on tab bar anchor elements.
22	is-active Identifies tab as default active tab. Optional on tab bar anchor element and associated tab section element.
23	mdl-layout__tab-panel Identifies container as tab content panel. Required on tab section elements.
24	mdl-layout--fixed-tabs Uses fixed tabs instead of the default scrollable tabs. Optional on outer container element , not container inside header.

The following examples show the use of mdl-layout class to style various containers.

Fixed Drawer

To create a template with fixed drawer but no header, the following MDL classes are used:

- **mdl-layout** - Identifies a div as an MDL component.
- **mdl-js-layout** - Adds basic MDL behavior to outer div.
- **mdl-layout--fixed-drawer** - Makes the drawer always visible and open in larger screens.
- **mdl-layout__drawer** - Identifies div as MDL layout drawer.
- **mdl-layout-title** - Identifies layout title text.
- **mdl-navigation** - Identifies div as MDL navigation group.
- **mdl-navigation__link** - Identifies anchor as MDL navigation link.
- **mdl-layout__content** - Identifies div as MDL layout content.

mdl_fixeddrawer.htm

```
<html>
  <head>
    <link rel="stylesheet"
href="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.indigo-
pink.min.css">
    <script src="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.min.js"></script>
```

```

    <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons">
  </head>
<body>
  <!-- No header, and the drawer stays open on larger screens (fixed drawer).-->
  <div class="mdl-layout mdl-js-layout mdl-layout--fixed-drawer">
    <div class="mdl-layout__drawer">
      <span class="mdl-layout-title">HTML5 Tutorial</span>
      <nav class="mdl-navigation">
        <a class="mdl-navigation__link" href="">Home</a>
        <a class="mdl-navigation__link" href="">About</a>
      </nav>
    </div>
    <main class="mdl-layout__content">
      <div class="page-content" style="padding-left:100px;">Hello World!</div>
    </main>
  </div>
</body>
</html>

```

Result

Verify the result.



Fixed Header

To create a template with fixed header, following additional MDL class is used.

- **mdl-layout--fixed-header** - Makes the header always visible, even in small screens.

mdl_fixedheader.htm

```

<html>
  <head>
    <link rel="stylesheet"
href="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.indigo-pink.min.css">
    <script src="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.min.js"></script>
    <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons">
  </head>
<body>
  <!-- Always shows a header, even in smaller screens. -->
  <div class="mdl-layout mdl-js-layout mdl-layout--fixed-header">
    <header class="mdl-layout__header">
      <div class="mdl-layout__header-row">
        <!-- Title -->
        <span class="mdl-layout-title">HTML5 Tutorial</span>
        <!-- Add spacer, to align navigation to the right -->
        <div class="mdl-layout-spacer"></div>
        <!-- Navigation -->
        <nav class="mdl-navigation">
          <a class="mdl-navigation__link" href="" style="color:gray">Home</a>
          <a class="mdl-navigation__link" href="" style="color:gray">About</a>
        </nav>
      </div>
    </header>
    <div class="mdl-layout__drawer">
      <span class="mdl-layout-title">HTML5 Tutorial</span>
      <nav class="mdl-navigation">
        <a class="mdl-navigation__link" href="">Home</a>
        <a class="mdl-navigation__link" href="">About</a>
      </nav>
    </div>
    <main class="mdl-layout__content">
      <div class="page-content">Hello World!</div>
    </main>
  </div>

```

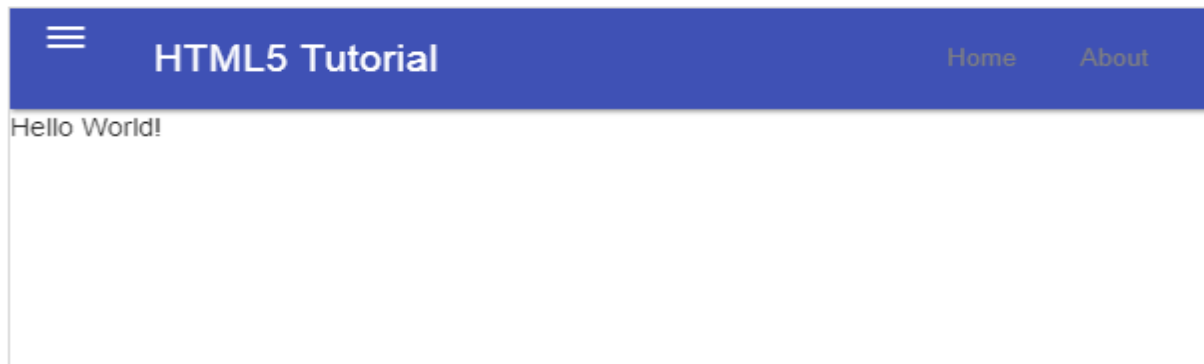
```

    </div>
</body>
</html>

```

Result

Verify the result.



Fixed Header and Drawer

To create a template with fixed header and a fixed drawer, following additional MDL classes are used.

- **mdl-layout--fixed-drawer** - Makes the drawer always visible and open in larger screens.
- **mdl-layout--fixed-header** - Makes the header always visible, even in small screens.

mdl_fixedheader.htm

```

<html>
  <head>
    <link rel="stylesheet"
href="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.indigo-
pink.min.css">
    <script src="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.min.js"></script>
    <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons">
  </head>
  <body>
    <!-- The drawer is always open in large screens. The header is always shown,
even in small screens. -->

```

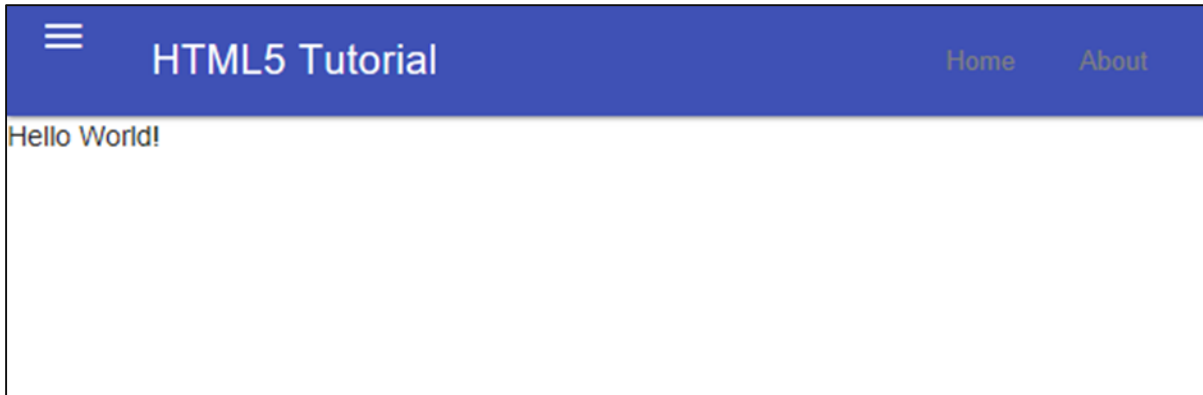
```

<div class="mdl-layout mdl-js-layout mdl-layout--fixed-drawer mdl-layout--
fixed-header">
  <header class="mdl-layout__header">
    <div class="mdl-layout__header-row">
      <!-- Title -->
      <span class="mdl-layout-title">HTML5 Tutorial</span>
      <!-- Add spacer, to align navigation to the right -->
      <div class="mdl-layout-spacer"></div>
      <!-- Navigation -->
      <nav class="mdl-navigation">
        <a class="mdl-navigation__link" href="" style="color:gray">Home</a>
        <a class="mdl-navigation__link" href="" style="color:gray">About</a>
      </nav>
    </div>
  </header>
  <div class="mdl-layout__drawer">
    <span class="mdl-layout-title">HTML5 Tutorial</span>
    <nav class="mdl-navigation">
      <a class="mdl-navigation__link" href="">Home</a>
      <a class="mdl-navigation__link" href="">About</a>
    </nav>
  </div>
  <main class="mdl-layout__content">
    <div class="page-content">Hello World!</div>
  </main>
</div>
</body>
</html>

```

Result

Verify the result.



Scrolling Header

To create a template with scrolling header, the following MDL classes are used.

- **mdl-layout--header--scroll** - Makes the header scroll with the content.

mdl_scrollingheader.htm

```
<html>
  <head>
    <link rel="stylesheet"
href="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.indigo-pink.min.css">
    <script src="https://storage.googleapis.com/code.getmdl.io/1.0.6/material.min.js"></script>
    <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons">
  </head>
<body>
  <!-- Uses a header that scrolls with the text, rather than staying locked at
the top -->
  <div class="mdl-layout mdl-js-layout ">
    <header class="mdl-layout__header mdl-layout__header--scroll">
      <div class="mdl-layout__header-row">
        <!-- Title -->
        <span class="mdl-layout-title">HTML5 Tutorial</span>
        <!-- Add spacer, to align navigation to the right -->
        <div class="mdl-layout-spacer"></div>
        <!-- Navigation -->
        <nav class="mdl-navigation">
          <a class="mdl-navigation__link" href="">Home</a>
```

```

        <a class="mdl-navigation__link" href="">About</a>
    </nav>
</div>
</header>
<div class="mdl-layout__drawer">
    <span class="mdl-layout-title">HTML5 Tutorial</span>
    <nav class="mdl-navigation">
        <a class="mdl-navigation__link" href="">Home</a>
        <a class="mdl-navigation__link" href="">About</a>
    </nav>
</div>
<main class="mdl-layout__content">
    <div class="page-content" style="padding-left:100px;">Hello World!
        <br/><br/><br/><br/><br/><br/><br/><br/>...
        <br/><br/><br/><br/><br/><br/><br/><br/>...
        <br/><br/><br/><br/><br/><br/><br/><br/>...
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        <br/><br/><br/><br/><br/><br/><br/><br/>...
        <br/><br/><br/><br/><br/><br/><br/><br/>...
    </div>

```

```
    </main>  
  </div>  
</body>  
</html>
```

Result

Verify the result.



Contracting Header

To create a template with a header that contracts as the page scrolls down, the following MDL class is used.

- **mdl-layout__header--waterfall** - Allows a "waterfall" effect with multiple header lines.

End of ebook preview
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