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A Food Wastage Reduction App Based on Django Python Application

# ABSTRACT

Wasting food is a common problem in our society. Food waste management is crucial since it can improve our environmental and economic sustainability. We have identified the use of web technology to reduce food waste management , our proposed system develop an Django python application for allows public users to donate and share their foods and leftovers with people in need. This Django app will enable users to register, login, view items, add items, add items to cart, remove an item from the cart, and log out. This app is using the Mysql storage and real-time database. Any user in need can see all the food images donated by different users and add it to his or her cart. To transform the existing manual food donate system into an automate system. For the better management of Food wastage reduction to improve efficiency. Django admin is most powerful parts of Django is its automatic admin interface. It reads metadata in your models to provide a powerful and production-ready interface that content producers can immediately use to start managing content on your site. Django is a web application framework written in Python programming language. It is based on MVT (Model View Template) design pattern.   Django is implemented in Python, which has excellent security track record.

# CHAPTER 1 –INTRODUCTION

 Mobile phone applications have seen wide use in recent years [1, 2]. It's known that Web is the most popular platform for mobile, right now web is used on over 190 countries in the world on millions of mobile devices. Web is the most installed platform for mobile, and the number is increasing rapidly since almost 1 million users every day purchase new Web devices and use it immediately to get digital content such as games, application, and many other services [3]. Due to that, we developed an web application “FoodReduction App” using web studio because it will reach a wider range of audience since most people nowadays use web phones. To improve the performance of the image processing algorithms, noise estimation can be used to adapt the detection step [4].

The purpose of this development is to limit the wastage of food in the United Arab Emirates. Many restaurants tend to throw the leftover food at the end of the day even though the food is perfectly fine to be eaten, which means that huge amounts of food are wasted. While all that food is being wasted, some families can barely afford proper meals with their limited money. They don't get enough nutrition due to the lack of having three meals in a day. Therefore, we decided to create our application to link the restaurant with the unfortunate people, so instead of throwing the food, the unfortunate will be able to pick it up from the restaurant at the end of the day. The application allows the restaurants to log in, and upload an image of the meals they have as leftovers along with a description of that meal, and the location where to pick it up.

The users then, can log in and choose the meal suitable to their choice and can pick it up once they send a request to the application.

## Objectives

The Application generally relates to a system and method to schedule events, and more particularly, to a system and method for scheduling technical events among entities such as organization.

## System Specifications

Software Requirements: -

Front End: HTML5, CSS3, Bootstrap

Back End: Python , MYSQL5.5

Tool : XAMPP 3.2.1, VS Code

Framework : Django 3.2.8

# CHAPTER 2 – LITERATURE REVIEW

According to [5], food waste is a significant issue around the world. It is predicted through a survey that more than 58 percent of food that people produce for consumption is wasted every day. Whereas, more than 60 percent of people in the third world countries are dying in malnutrition without proper food for a living. Therefore, the technologically developed countries are emphasizing more on this issue. Therefore, that less food can be wasted and can be distributed to the needy people. According to [6] in the age of modern era, where we are developed through artificial intelligence, people are more dependent on the smartphone. There are various applications, which are developed to control the huge wastage of food, and it provides the opportunity to send that extra food to the people who need it. There are multiple applications, which control food waste. The most useful food waste application for web and apple are discussed below:

**A. Food waste application of Singapore (11th Hour)**

Tan Jun Yuan who is a food stall hawker from Singapore felt very bad noticing that people waste so much food in every year. He saw many vendors with leftover foods in a day. The quantity was 10 to 15 bowl of pork ribs served including other foods that he served the customers per day. He also saw that more than 35 percent of food he made every day was left asextra. Therefore, he created the application named 11Th Hour. This application provides the left and unused foods at the half of their original price before the restaurants are closed. After the creation of this application, there were almost 20000 downloads of this application [7].

**B. Food waste reduction application from Netherlands (NoFoodWasted)**

August de Vocht, a citizen of Netherlands developed this application to reduce the amount of food waste. This application makes collaboration with the supermarket so that people can be aware of the foods that will be expired very soon. According to [8], it helps the users to upload their grocery items, which will expire soon so that people who are in need of food can buy them at a reduced price and use them. It helps to stop the wastage of excessive foods. More than 20000 people have found this application useful, and it has reduced the amount of food wastage in the therlands.

**C. An application to control food waste by UK and Ireland (FoodCloud)**

This application has been declared as one of the useful food wastage application in the United Kingdom as well as Ireland. This application notifies the supermarkets about their surplus food so that the charitable societies can collect them and reduce the chances of food wastage. This application works as an intermediate that provides the type of foods and arranges the pick-up for the charities. It also collects and stores the food so that the charitable societies can collect the food according to their requirements. According to [9] more than 1200 business hubs and 3000 charitable societies work under this application to provide excess foods to the homeless people.

**D. Food wastage Reduction Application from Africa (Cheetah)**

Some researchers from the University of Twente have developed this application to reduce the number of food wastages in Africa. It is seen that various fruits and vegetables lose their ability to be consumed due to poor road circumstances, less refrigeration in Africa. This application is created to gather those food items before they get rotten and distribute it to the needy malnutrition people of Africa. Dutch

Ministry of Foreign Affairs helped the researchers in the development of this application. Mostly, farmers, the food transporters use this application, and it also helped them to reduce the chances of food bribing in Africa. It is expected that the public version of this application will be released within May, next year [10].

**E. Indian Food Wastage Reduction Application (No Food Waste)**

No Food waste is an application from India that allows the restaurants, food stalls and parties to inform about their excessive leftover foods so that needy people can collect them for their usage. This application collects those foods and distributes those among the homeless people, slum dwellers and orphanages as well as nursing homes. According to [11], the users can also notify them by showing hunger points, and they will distribute the foods to there. The only requirement is they take foods only if it is prepared two hours before. These applications have changed the use of artificial intelligence by providing food to the needy people. It is considered one of the best uses of software development. However, food wastage is still a bad habit. According to [12], people need to be more careful while preparing or ordering food because many people around the world do not get to eat. Food wastage reduction has decreased a lot due to the usage of this application, but people need to be more sensitive and careful so that a better world can be created where no food is wasted.

**Existing Solution:**

Many restaurants tend to throw the leftover food at the end of the day even though the food is perfectly fine to be eaten, which means that huge amounts of food are wasted. While all that food is being wasted, some families can barely afford proper meals with their limited money. They don't get enough nutrition due to the lack of having three meals in a day.

Therefore, we decided to create our application to link the restaurant with the unfortunate people, so instead of throwing the food, the unfortunate will be able to pick it up from the restaurant at the end of the day.

**Proposed Solution:**

Mobile application technology is beneficial for food waste management. The app aims to encourage better food management. Our proposed solution should reduce food wastage by facilitating food sharing in India community using mobile technology. This work is an initial step towards designing a better system to reduce daily food waste. In future, this app could be enhanced more by adding the following features:

• Extending our app to have many types of donating users either from organizations such as restaurants, or a family or a single user

• Adding the location facility to our apps. The donating user should specify the location of the shared food.

• Adding the time and date of each meal shared by users

• Making the app supports multiple platforms (crossplatform app)

# CHAPTER 3 OVERALL DESCRIPTION OF THE PROPOSED SYSTEM

## 3.1 Module Description

1. Users Register
   * This module is used to create a user registrations form. After registering application form the users able to enter into process. To register the form following details should be given by the user, the details that should be filled by the user is their personal details and the required details by the secret password, location, address etc.
2. Login
   * User can login using username and password
3. View Items
   * Search location wise and book the food items
4. Add Items
   * Create a new food item with details of quantity, location, address contact
5. Add images
   * Add images to the food items
6. Add Items To Cart
   * Add multiple food items to cart for booking
7. Remove An Item From The Cart
   * Delete food items to cart for booking

## 3.2 System Features

In the life of the software development, problem analysis provides a base for design and development phase. The problem is analyzed so that sufficient matter is provided to design a new system. Large problems are sub-divided into smaller once to make them understandable and easy for finding solutions. Same in this project all the task are sub-divided and categorized.

**System Modules:**

* User Register
* Login
* View Food Item
* Add Food Item
* Update/Delete Food
* Update Google geo location
* Search Nearby food items
* Add Items To Cart
* Remove An Item From The Cart
* View New Order
* View My Order
* My Profile
* Log Out

# 

# CHAPTER 4 – DESIGN

Design is the first step in the development phase for any techniques and principles for the purpose of defining a device, a process or system in sufficient detail to permit its physical realization.

Once the software requirements have been analyzed and specified the software design involves three technical activities - design, coding, implementation and testing that are required to build and verify the software.

The design activities are of main importance in this phase, because in this activity, decisions ultimately affecting the success of the software implementation and its ease of maintenance are made. These decisions have the final bearing upon reliability and maintainability of the system. Design is the only way to accurately translate the customer’s requirements into finished software or a system.

Design is the place where quality is fostered in development. Software design is a process through which requirements are translated into a representation of software. Software design is conducted in two steps. Preliminary design is concerned with the transformation of requirements into data.

## 

## 4.1UML Diagrams:

UML stands for Unified Modeling Language. UML is a language for specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be designed.

There are various kinds of methods in software design:

* Use case Diagram
* Sequence Diagram
* Collaboration Diagram

**4.1.1Usecase Diagrams**:

Use case diagrams model behavior within a system and helps the developers understand of what the user require. The stick man represents what’s called an actor. Use case diagram can be useful for getting an overall view of the system and clarifying who can do and more importantly what they can’t do.



Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

* The purpose is to show the interactions between the use case and actor.
* To represent the system requirements from user’s perspective.
* An actor could be the end-user of the system or an external system

**4.1.2 Sequence Diagram:**

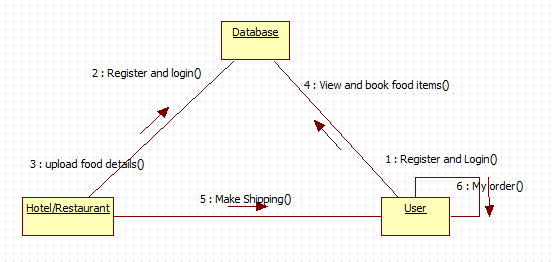
Sequence diagram and collaboration diagram are called INTERACTION DIAGRAMS. An interaction diagram shows an interaction, consisting of set of objects and their relationship including the messages that may be dispatched among them.

A sequence diagram is an introduction that empathizes the time ordering of messages. Graphically a sequence diagram is a table that shows objects arranged along the X-axis and messages ordered in increasing time along the Y-axis.



**4.1.3 Collaborate Diagram:**

A collaboration diagram, also called a communication diagram or interaction diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML).



**4.1.4 DFD Diagram**

Data Flow Diagram

User Registration& Login

Hotel Reg & Login

Create Food Items

Give Feedback

User Make Order

View Food Items

### 4.1.5 Table Design

**User Register & Login**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| User ID | Name | Email Id | Password | Mobile | Address | City | Question 1 | Question 2 |
| Int | Varchar | Varchar | Varchar | Varchar | Varchar | Varchar | Varchar | Varchar |
| 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Primary key |  |  |  |  |  |  |  |  |

**Create Food Item**

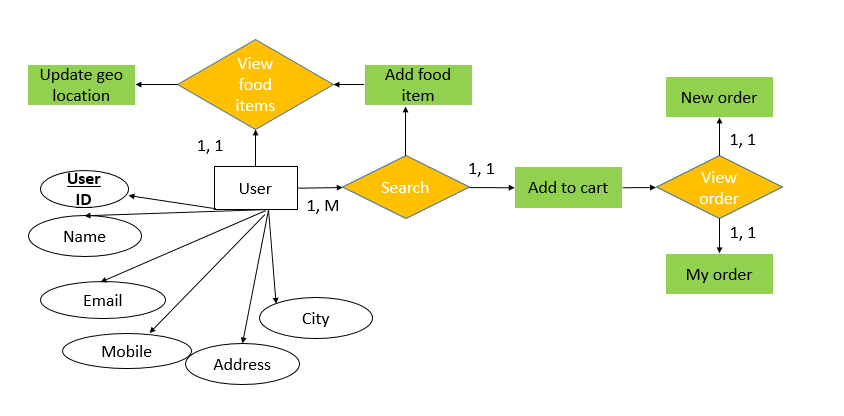
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Item Name | Image | Quantity | Place | Location |
| Int | Varchar | Varchar | Varchar | Varchar | Varchar |
| 100 | 100 | 100 | 100 | 100 | 100 |
| Primary key |  |  |  |  |  |

**My Order**

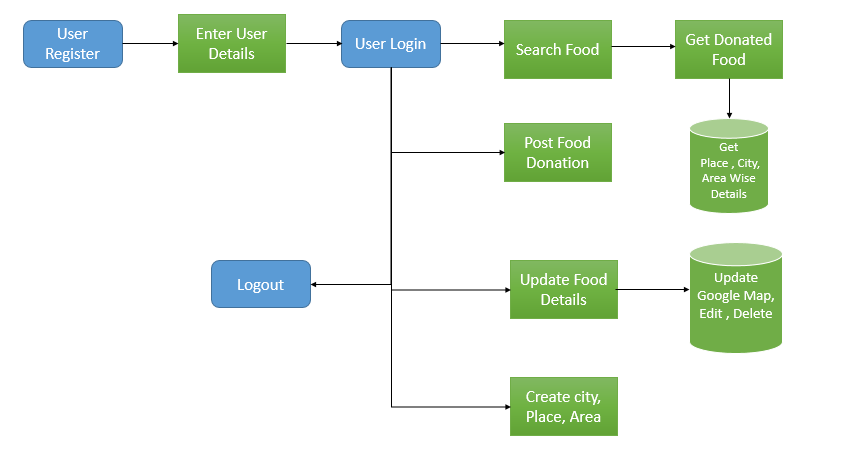
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ID | Item Name | Image | Quantity | Place | Location | User ID |
| Int | Varchar | Varchar | Varchar | Varchar | Varchar | Varchar |
| 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Primary key |  |  |  |  |  |  |

### 4.1.6 Work Flow Diagram

### C:\xampp\htdocs\projects\doc\work flow diagram_Django.PNG4.1.7 ER Diagram



### 4.1.8 Architecture Diagram

****

# CHAPTER 5 - OUTPUT SCREENSHOTS

# CHAPTER 6 – IMPLEMENTATION DETAILS

## 6.1 Introduction to Html Framework

Hyper Text Markup Language, commonly referred to as HTML, is the standard [markup language](https://en.wikipedia.org/wiki/Markup_language) used to create [web pages](https://en.wikipedia.org/wiki/Web_page). Along with [CSS](https://en.wikipedia.org/wiki/Cascading_Style_Sheets), and [JavaScript](https://en.wikipedia.org/wiki/JavaScript), HTML is a cornerstone technology used to create web pages, as well as to create user interfaces for mobile and [web applications](https://en.wikipedia.org/wiki/Web_applications). [Web browsers](https://en.wikipedia.org/wiki/Web_browser) can read HTML files and render them into visible or audible web pages. HTML describes the structure of a [website](https://en.wikipedia.org/wiki/Website) [semantically](https://en.wikipedia.org/wiki/Semantic) along with cues for presentation, making it a markup language, rather than a [programming language](https://en.wikipedia.org/wiki/Programming_language).

[HTML elements](https://en.wikipedia.org/wiki/HTML_element) form the building blocks of HTML pages. HTML allows [images](https://en.wikipedia.org/wiki/Img_(HTML_element)) and other objects to be embedded and it can be used to create [interactive forms](https://en.wikipedia.org/wiki/Fieldset). It provides a means to create [structured documents](https://en.wikipedia.org/wiki/Structured_document) by denoting structural[semantics](https://en.wikipedia.org/wiki/Semantics) for text such as headings, paragraphs, lists, [links](https://en.wikipedia.org/wiki/Hyperlink), quotes and other items. HTML elements are delineated by tags, written using [angle brackets](https://en.wikipedia.org/wiki/Bracket#Angle_brackets). Tags such as <img /> and <input /> introduce content into the page directly. Others such as <p>...</p> surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed [scripts](https://en.wikipedia.org/wiki/Scripting_language) written in languages such as [JavaScript](https://en.wikipedia.org/wiki/JavaScript) which affect the behavior of HTML web pages. HTML markup can also refer the browser to [Cascading Style Sheets](https://en.wikipedia.org/wiki/Cascading_Style_Sheets) (CSS) to define the look and layout of text and other material.

HyperText Markup Language (HTML) is the standard [markup language](https://en.wikipedia.org/wiki/Markup_language) for creating [web pages](https://en.wikipedia.org/wiki/Web_page) and [web applications](https://en.wikipedia.org/wiki/Web_application). With [Cascading Style Sheets](https://en.wikipedia.org/wiki/Cascading_Style_Sheets) (CSS) and [JavaScript](https://en.wikipedia.org/wiki/JavaScript) it forms a triad of cornerstone technologies for the [World Wide Web](https://en.wikipedia.org/wiki/World_Wide_Web).[[1]](https://en.wikipedia.org/wiki/HTML#cite_note-1) [Web browsers](https://en.wikipedia.org/wiki/Web_browser) receive HTML documents from a [webserver](https://en.wikipedia.org/wiki/Webserver) or from local storage and render them into multimedia web pages. HTML describes the structure of a web page [semantically](https://en.wikipedia.org/wiki/Semantic) and originally included cues for the appearance of the document.

[HTML elements](https://en.wikipedia.org/wiki/HTML_element) are the building blocks of HTML pages. With HTML constructs, [images](https://en.wikipedia.org/wiki/Img_%28HTML_element%29) and other objects, such as [interactive forms,](https://en.wikipedia.org/wiki/Fieldset) may be embedded into the rendered page. It provides a means to create [structured documents](https://en.wikipedia.org/wiki/Structured_document) by denoting structural [semantics](https://en.wikipedia.org/wiki/Semantics) for text such as headings, paragraphs, lists, [links](https://en.wikipedia.org/wiki/Hyperlink), quotes and other items. HTML elements are delineated by tags, written using [angle brackets](https://en.wikipedia.org/wiki/Bracket#Angle_brackets). Tags such as <img /> and <input /> introduce content into the page directly. Others such as <p>...</p> surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a [scripting language](https://en.wikipedia.org/wiki/Scripting_language) such as [JavaScript](https://en.wikipedia.org/wiki/JavaScript) which affect the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The [World Wide Web Consortium](https://en.wikipedia.org/wiki/World_Wide_Web_Consortium) (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.[[2]](https://en.wikipedia.org/wiki/HTML#cite_note-deprecated-2)

In 1980, physicist [Tim Berners-Lee](https://en.wikipedia.org/wiki/Tim_Berners-Lee), a contractor at [CERN](https://en.wikipedia.org/wiki/CERN), proposed and prototyped [ENQUIRE](https://en.wikipedia.org/wiki/ENQUIRE), a system for CERN researchers to use and share documents. In 1989, Berners-Lee wrote a memo proposing an [Internet](https://en.wikipedia.org/wiki/Internet)-based [hypertext](https://en.wikipedia.org/wiki/Hypertext) system.[[3]](https://en.wikipedia.org/wiki/HTML#cite_note-3) Berners-Lee specified HTML and wrote the browser and server software in late 1990. That year, Berners-Lee and CERN data systems engineer [Robert Cailliau](https://en.wikipedia.org/wiki/Robert_Cailliau) collaborated on a joint request for funding, but the project was not formally adopted by CERN. In his personal notes[[4]](https://en.wikipedia.org/wiki/HTML#cite_note-4) from 1990 he listed[[5]](https://en.wikipedia.org/wiki/HTML#cite_note-5) "some of the many areas in which hypertext is used" and put an encyclopedia first.

The first publicly available description of HTML was a document called "HTML Tags", first mentioned on the Internet by Tim Berners-Lee in late 1991.[[6]](https://en.wikipedia.org/wiki/HTML#cite_note-tagshtml-6)[[7]](https://en.wikipedia.org/wiki/HTML#cite_note-7) It describes 18 elements comprising the initial, relatively simple design of HTML. Except for the hyperlink tag, these were strongly influenced by [SGMLguid](https://en.wikipedia.org/wiki/SGMLguid), an in-house [Standard Generalized Markup Language](https://en.wikipedia.org/wiki/Standard_Generalized_Markup_Language) (SGML)-based documentation format at CERN. Eleven of these elements still exist in HTML 4.[[8]](https://en.wikipedia.org/wiki/HTML#cite_note-8)

HTML is a [markup language](https://en.wikipedia.org/wiki/Markup_language) that [web browsers](https://en.wikipedia.org/wiki/Web_browser) use to interpret and [compose](https://en.wikipedia.org/wiki/Typesetting) text, images, and other material into visual or audible web pages. Default characteristics for every item of HTML markup are defined in the browser, and these characteristics can be altered or enhanced by the web page designer's additional use of [CSS](https://en.wikipedia.org/wiki/Cascading_Style_Sheets). Many of the text elements are found in the 1988 ISO technical report TR 9537 Techniques for using SGML, which in turn covers the features of early text formatting languages such as that used by the [RUNOFF command](https://en.wikipedia.org/wiki/TYPSET_and_RUNOFF) developed in the early 1960s for the [CTSS](https://en.wikipedia.org/wiki/Compatible_Time-Sharing_System) (Compatible Time-Sharing System) operating system: these formatting commands were derived from the commands used by typesetters to manually format documents. However, the SGML concept of generalized markup is based on elements (nested annotated ranges with attributes) rather than merely print effects, with also the separation of structure and markup; HTML has been progressively moved in this direction with CSS.

Berners-Lee considered HTML to be an application of SGML. It was formally defined as such by the [Internet Engineering Task Force](https://en.wikipedia.org/wiki/Internet_Engineering_Task_Force) (IETF) with the mid-1993 publication of the first proposal for an HTML specification, the "Hypertext Markup Language (HTML)" Internet Draft by Berners-Lee and [Dan Connolly](https://en.wikipedia.org/wiki/Dan_Connolly_%28computer_scientist%29), which included an SGML [Document Type Definition](https://en.wikipedia.org/wiki/Document_Type_Definition) to define the grammar.[[9]](https://en.wikipedia.org/wiki/HTML#cite_note-9)[[10]](https://en.wikipedia.org/wiki/HTML#cite_note-10) The draft expired after six months, but was notable for its acknowledgment of the [NCSA Mosaic](https://en.wikipedia.org/wiki/Mosaic_%28web_browser%29) browser's custom tag for embedding in-line images, reflecting the IETF's philosophy of basing standards on successful prototypes.[[11]](https://en.wikipedia.org/wiki/HTML#cite_note-raymond-11) Similarly, [Dave Raggett](https://en.wikipedia.org/wiki/Dave_Raggett)'s competing Internet-Draft, "HTML+ (Hypertext Markup Format)", from late 1993, suggested standardizing already-implemented features like tables and fill-out forms.[[12]](https://en.wikipedia.org/wiki/HTML#cite_note-html.2B-12)

After the HTML and HTML+ drafts expired in early 1994, the IETF created an HTML Working Group, which in 1995 completed "HTML 2.0", the first HTML specification intended to be treated as a standard against which future implementations should be based.[[13]](https://en.wikipedia.org/wiki/HTML#cite_note-13)

Further development under the auspices of the IETF was stalled by competing interests. Since 1996, the HTML specifications have been maintained, with input from commercial software vendors, by the [World Wide Web Consortium](https://en.wikipedia.org/wiki/World_Wide_Web_Consortium) (W3C).[[14]](https://en.wikipedia.org/wiki/HTML#cite_note-raggett-14) However, in 2000, HTML also became an international standard ([ISO](https://en.wikipedia.org/wiki/International_Organization_for_Standardization)/[IEC](https://en.wikipedia.org/wiki/International_Electrotechnical_Commission) 15445:2000). HTML 4.01 was published in late 1999, with further errata published through 2001. In 2004, development began on HTML5 in the [Web Hypertext Application Technology Working Group](https://en.wikipedia.org/wiki/Web_Hypertext_Application_Technology_Working_Group) (WHATWG), which became a joint deliverable with the W3C in 2008, and completed and standardized on 28 October 2014.[[15]](https://en.wikipedia.org/wiki/HTML#cite_note-15)

## 6.2 Cascading Style Sheets (CSS)

CSS is a [style sheet language](https://en.wikipedia.org/wiki/Style_sheet_language) used for describing the [presentation](https://en.wikipedia.org/wiki/Presentation_semantics) of a document written in a [markup language](https://en.wikipedia.org/wiki/Markup_language). Although most often used to set the visual style of [web pages](https://en.wikipedia.org/wiki/Web_page) and user interfaces written in [HTML](https://en.wikipedia.org/wiki/HTML) and [XHTML](https://en.wikipedia.org/wiki/XHTML), the language can be applied to any [XML](https://en.wikipedia.org/wiki/XML) document, including [plain XML](https://en.wikipedia.org/wiki/Plain_Old_XML), [SVG](https://en.wikipedia.org/wiki/Scalable_Vector_Graphics) and[XUL](https://en.wikipedia.org/wiki/XUL), and is applicable to rendering in [speech](https://en.wikipedia.org/wiki/Speech_synthesis), or on other media. Along with HTML and [JavaScript](https://en.wikipedia.org/wiki/JavaScript), CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for [web applications](https://en.wikipedia.org/wiki/Web_applications), and user interfaces for many mobile applications.

CSS is designed primarily to enable [the separation of document content from document presentation](https://en.wikipedia.org/wiki/Separation_of_presentation_and_content), including aspects such as the [layout](https://en.wikipedia.org/wiki/Page_layout), [colors](https://en.wikipedia.org/wiki/Color), and [fonts](https://en.wikipedia.org/wiki/Typeface). This separation can improve content [accessibility](https://en.wikipedia.org/wiki/Accessibility), provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content, such as [semantically insignificant tables](https://en.wikipedia.org/wiki/Tableless_web_design) that were widely used to format pages before consistent CSS rendering was available in all major browsers. CSS makes it possible to separate presentation instructions from the HTML content in a separate file or style section of the HTML file. For each matching [HTML element](https://en.wikipedia.org/wiki/HTML_element), it provides a list of formatting instructions. For example, a CSS rule might specify that "all heading 1 elements should be [bold](https://en.wikipedia.org/wiki/Bold)", leaving pure semantic HTML markup that asserts "this text is a level 1 heading" without formatting code such as a<bold> tag indicating how such text should be displayed.

This separation of formatting and content makes it possible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or[screen reader](https://en.wikipedia.org/wiki/Screen_reader)) and on [Braille-based](https://en.wikipedia.org/wiki/Braille_display), tactile devices. It can also be used to display the web page differently depending on the screen size or device on which it is being viewed. Although the author of a web page typically links to a CSS file within the markup file, readers can specify a different style sheet, such as a CSS file stored on their own computer, to override the one the author has specified. If the author or the reader did not link the document to a style sheet, the default style of the browser will be applied. Another advantage of CSS is that aesthetic changes to the [graphic design](https://en.wikipedia.org/wiki/Graphic_design) of a document (or hundreds of documents) can be applied quickly and easily, by editing a few lines in one file, rather than by a laborious (and thus expensive) process of crawling over every document line by line, changing markup.

The CSS specification describes a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities (or weights) are calculated and assigned to rules, so that the results are predictable.

Cascading Style Sheets (CSS) is a [style sheet language](https://en.wikipedia.org/wiki/Style_sheet_language) used for describing the [presentation](https://en.wikipedia.org/wiki/Presentation_semantics) of a document written in a [markup language](https://en.wikipedia.org/wiki/Markup_language).[[1]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-1) Although most often used to set the visual style of [web pages](https://en.wikipedia.org/wiki/Web_page) and user interfaces written in [HTML](https://en.wikipedia.org/wiki/HTML) and [XHTML](https://en.wikipedia.org/wiki/XHTML), the language can be applied to any [XML](https://en.wikipedia.org/wiki/XML) document, including [plain XML](https://en.wikipedia.org/wiki/Plain_Old_XML), [SVG](https://en.wikipedia.org/wiki/Scalable_Vector_Graphics) and [XUL](https://en.wikipedia.org/wiki/XUL), and is applicable to rendering in [speech](https://en.wikipedia.org/wiki/Speech_synthesis), or on other media. Along with HTML and [JavaScript](https://en.wikipedia.org/wiki/JavaScript), CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for [web applications](https://en.wikipedia.org/wiki/Web_applications), and user interfaces for many mobile applications.[[2]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-2)

CSS is designed primarily to enable [the separation of document content from document presentation](https://en.wikipedia.org/wiki/Separation_of_presentation_and_content), including aspects such as the [layout](https://en.wikipedia.org/wiki/Page_layout), [colors](https://en.wikipedia.org/wiki/Color), and [fonts](https://en.wikipedia.org/wiki/Typeface).[[3]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-3) This separation can improve content [accessibility](https://en.wikipedia.org/wiki/Accessibility), provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

Separation of formatting and content makes it possible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or [screen reader](https://en.wikipedia.org/wiki/Screen_reader)), and on [Braille-based](https://en.wikipedia.org/wiki/Braille_display) tactile devices. It can also display the web page differently depending on the screen size or viewing device. Readers can also specify a different style sheet, such as a CSS file stored on their own computer, to override the one the author specified.

Changes to the [graphic design](https://en.wikipedia.org/wiki/Graphic_design) of a document (or hundreds of documents) can be applied quickly and easily, by editing a few lines in the CSS file they use, rather than by changing markup in the documents.

The CSS specification describes a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities (or weights) are calculated and assigned to rules, so that the results are predictable.

The CSS specifications are maintained by the [World Wide Web Consortium](https://en.wikipedia.org/wiki/World_Wide_Web_Consortium) (W3C). Internet media type ([MIME type](https://en.wikipedia.org/wiki/MIME_media_type)) text/css is registered for use with CSS by [RFC 2318](https://tools.ietf.org/html/rfc2318) (March 1998). The W3C operates a free [CSS validation service](https://en.wikipedia.org/wiki/W3C_Markup_Validation_Service#CSS_validation) for CSS documents.

In CSS, selectors declare which part of the markup a style applies to by matching tags and attributes in the markup itself.

Selectors may apply to:

all [elements](https://en.wikipedia.org/wiki/HTML_element) of a specific type, e.g. the second-level headers [h2](https://en.wikipedia.org/wiki/HTML_element#Basic_text)

elements specified by [attribute](https://en.wikipedia.org/wiki/HTML_attribute), in particular:

id: an identifier unique within the document

class: an identifier that can annotate multiple elements in a document

elements depending on how they are placed relative to others in the [document tree](https://en.wikipedia.org/wiki/Document_Object_Model).

Classes and IDs are case-sensitive, start with letters, and can include alphanumeric characters and underscores. A class may apply to any number of instances of any elements. An ID may only be applied to a single element.

Pseudo-classes are used in CSS selectors to permit formatting based on information that is not contained in the document tree. One example of a widely used pseudo-class is :hover, which identifies content only when the user "points to" the visible element, usually by holding the mouse cursor over it. It is appended to a selector as in a:hover or #elementid:hover. A pseudo-class classifies document elements, such as :link or :visited, whereas a pseudo-element makes a selection that may consist of partial elements, such as ::first-line or ::first-letter.[[5]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-5)

Selectors may be combined in many ways to achieve great specificity and flexibility.[[6]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-6) Multiple selectors may be joined in a spaced list to specify elements by location, element type, id, class, or any combination thereof. The order of the selectors is important. For example, div .myClass {color: red;} applies to all elements of class myClass that are inside div elements, whereas .myClass div {color: red;} applies to all div elements that are in elements of class myClass.

CSS information can be provided from various sources. These sources can be the web browser, the user and the author. The information from the author can be further classified into inline, media type, importance, selector specificity, rule order, inheritance and property definition. CSS style information can be in a separate document or it can be embedded into an HTML document. Multiple style sheets can be imported. Different styles can be applied depending on the output device being used; for example, the screen version can be quite different from the printed version, so that authors can tailor the presentation appropriately for each medium.

The style sheet with the highest priority controls the content display. Declarations not set in the highest priority source are passed on to a source of lower priority, such as the user agent style. This process is called cascading.

One of the goals of CSS is to allow users greater control over presentation. Someone who finds red italic headings difficult to read may apply a different style sheet. Depending on the browser and the web site, a user may choose from various style sheets provided by the designers, or may remove all added styles and view the site using the browser's default styling, or may override just the red italic heading style without altering other attributes.

CSS was first proposed by [Håkon Wium Lie](https://en.wikipedia.org/wiki/H%C3%A5kon_Wium_Lie) on October 10, 1994.[[16]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-chss-proposal-16) At the time, Lie was working with [Tim Berners-Lee](https://en.wikipedia.org/wiki/Tim_Berners-Lee) at [CERN](https://en.wikipedia.org/wiki/CERN).[[17]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-chapter20-17) Several other style sheet languages for the web were proposed around the same time, and discussions on public mailing lists and inside [World Wide Web Consortium](https://en.wikipedia.org/wiki/World_Wide_Web_Consortium) resulted in the first W3C CSS Recommendation (CSS1)[[18]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-w3c-css1-18) being released in 1996. In particular, [Bert Bos](https://en.wikipedia.org/wiki/Bert_Bos)' proposal was influential; he became co-author of CSS1 and is regarded as co-creator of CSS.[[19]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-WWW3-19)

Style sheets have existed in one form or another since the beginnings of Standard Generalized Markup Language ([SGML](https://en.wikipedia.org/wiki/SGML)) in the 1980s, and CSS was developed to provide style sheets for the web.[[20]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-css-phd-20) One requirement for a web style sheet language was for style sheets to come from different sources on the web. Therefore, existing style sheet languages like [DSSSL](https://en.wikipedia.org/wiki/Document_Style_Semantics_and_Specification_Language) and [FOSI](https://en.wikipedia.org/wiki/Formatting_Output_Specification_Instance) were not suitable. CSS, on the other hand, let a document's style be influenced by multiple style sheets by way of "cascading" styles.[[20]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-css-phd-20)

As [HTML](https://en.wikipedia.org/wiki/HTML) grew, it came to encompass a wider variety of stylistic capabilities to meet the demands of [web developers](https://en.wikipedia.org/wiki/Web_development). This evolution gave the designer more control over site appearance, at the cost of more complex HTML. Variations in [web browser](https://en.wikipedia.org/wiki/Web_browser) implementations, such as [ViolaWWW](https://en.wikipedia.org/wiki/ViolaWWW) and [WorldWideWeb](https://en.wikipedia.org/wiki/WorldWideWeb),[[21]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-IEEE-21) made consistent site appearance difficult, and users had less control over how web content was displayed. The browser/editor developed by Tim Berners-Lee had style sheets that were hard-coded into the program. The style sheets could therefore not be linked to documents on the web.[[22]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-cssdftw-22) [Robert Cailliau](https://en.wikipedia.org/wiki/Robert_Cailliau), also of CERN, wanted to separate the structure from the presentation so that different style sheets could describe different presentation for printing, screen-based presentations, and editors.[[21]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-IEEE-21)

Improving web presentation capabilities was a topic of interest to many in the web community and nine different style sheet languages were proposed on the www-style mailing list.[[20]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-css-phd-20) Of these nine proposals, two were especially influential on what became CSS: Cascading HTML Style Sheets[[16]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-chss-proposal-16) and Stream-based Style Sheet Proposal (SSP).[[19]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-WWW3-19)[[23]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-ssp-23) Two browsers served as testbeds for the initial proposals; Lie worked with [Yves Lafon](https://en.wikipedia.org/w/index.php?title=Yves_Lafon&action=edit&redlink=1) to implement CSS in [Dave Raggett](https://en.wikipedia.org/wiki/Dave_Raggett)'s [Arena](https://en.wikipedia.org/wiki/Arena_%28web_browser%29) browser.[[24]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-24)[[25]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-25)[[26]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-26) [Bert Bos](https://en.wikipedia.org/wiki/Bert_Bos) implemented his own SSP proposal in the [Argo](https://en.wikipedia.org/wiki/Argo_%28web_browser%29) browser.[[19]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-WWW3-19) Thereafter, Lie and Bos worked together to develop the CSS standard (the 'H' was removed from the name because these style sheets could also be applied to other markup languages besides HTML).[[17]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-chapter20-17)

Lie's proposal was presented at the "[Mosaic and the Web](https://en.wikipedia.org/w/index.php?title=Mosaic_and_the_Web&action=edit&redlink=1)" conference (later called WWW2) in [Chicago, Illinois](https://en.wikipedia.org/wiki/Chicago,_Illinois) in 1994, and again with Bert Bos in 1995.[[17]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-chapter20-17) Around this time the W3C was already being established, and took an interest in the development of CSS. It organized a workshop toward that end chaired by [Steven Pemberton](https://en.wikipedia.org/wiki/Steven_Pemberton). This resulted in W3C adding work on CSS to the deliverables of the HTML editorial review board (ERB). Lie and Bos were the primary technical staff on this aspect of the project, with additional members, including [Thomas Reardon](https://en.wikipedia.org/wiki/Thomas_Reardon) of [Microsoft](https://en.wikipedia.org/wiki/Microsoft), participating as well. In August 1996 [Netscape Communication Corporation](https://en.wikipedia.org/wiki/Netscape) presented an alternative style sheet language called [JavaScript Style Sheets](https://en.wikipedia.org/wiki/JavaScript_Style_Sheets) (JSSS).[[17]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-chapter20-17) The spec was never finished and is deprecated.[[27]](https://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-27) By the end of 1996, CSS was ready to become official, and the CSS level 1 Recommendation was published in December.

Development of HTML, CSS, and the [DOM](https://en.wikipedia.org/wiki/Document_Object_Model) had all been taking place in one group, the HTML Editorial Review Board (ERB). Early in 1997, the ERB was split into three [working groups](https://en.wikipedia.org/wiki/Working_group): [HTML Working group](https://en.wikipedia.org/wiki/HTML_Working_group), chaired by [Dan Connolly](https://en.wikipedia.org/wiki/Dan_Connolly_%28computer_scientist%29) of W3C; DOM Working group, chaired by Lauren Wood of [SoftQuad](https://en.wikipedia.org/wiki/SoftQuad); and [CSS Working group](https://en.wikipedia.org/wiki/CSS_Working_group), chaired by [Chris Lilley](https://en.wikipedia.org/wiki/Chris_Lilley_%28W3C%29) of W3C.

The CSS Working Group began tackling issues that had not been addressed with CSS level 1, resulting in the creation of CSS level 2 on November 4, 1997. It was published as a W3C Recommendation on May 12, 1998. CSS level 3, which was started in 1998, is still under development as of 2014.

In 2005 the CSS Working Groups decided to enforce the requirements for standards more strictly. This meant that already published standards like CSS 2.1, CSS 3 Selectors and CSS 3 Text were pulled back from Candidate Recommendation to Working Draft level.

## 6.3 MYSQL Server

MySQL  is an [open-source](https://en.wikipedia.org/wiki/Open-source) [relational database management system](https://en.wikipedia.org/wiki/Relational_database_management_system) (RDBMS);[[6]](https://en.wikipedia.org/wiki/MySQL#cite_note-6) in July 2013, it was the world's second most widely used RDBMS, and the most widely used open-source [client–server model](https://en.wikipedia.org/wiki/Client%E2%80%93server_model) RDBMS. It is named after co-founder [Michael Widenius](https://en.wikipedia.org/wiki/Michael_Widenius)'s daughter, My. The [SQL](https://en.wikipedia.org/wiki/SQL) acronym stands for [Structured Query Language](https://en.wikipedia.org/wiki/Structured_Query_Language). The MySQL development project has made its [source code](https://en.wikipedia.org/wiki/Source_code) available under the terms of the [GNU General Public License](https://en.wikipedia.org/wiki/GNU_General_Public_License), as well as under a variety of [proprietary](https://en.wikipedia.org/wiki/Proprietary_software) agreements. MySQL was owned and sponsored by a single [for-profit](https://en.wikipedia.org/wiki/Business) firm, the [Swedish](https://en.wikipedia.org/wiki/Sweden)company [MySQL AB](https://en.wikipedia.org/wiki/MySQL_AB), now owned by [Oracle Corporation](https://en.wikipedia.org/wiki/Oracle_Corporation). For proprietary use, several paid editions are available, and offer additional functionality.

SQL Server Management Studio (SSMS) is a software application first launched with [Microsoft](https://en.wikipedia.org/wiki/Microsoft) [SQL Server 2005](https://en.wikipedia.org/wiki/Microsoft_SQL_Server) that is used for configuring, managing, and administering all components within [Microsoft SQL Server](https://en.wikipedia.org/wiki/Microsoft_SQL_Server). The tool includes both script editors and graphical tools which work with objects and features of the server.[[1]](https://en.wikipedia.org/wiki/SQL_Server_Management_Studio#cite_note-1)

A central feature of SSMS is the Object Explorer, which allows the user to browse, select, and act upon any of the objects within the server.[[2]](https://en.wikipedia.org/wiki/SQL_Server_Management_Studio#cite_note-2) It also shipped a separate Express edition that could be freely downloaded, however recent versions of SSMS are fully capable of connecting to and manage any SQL Server Express instance. Microsoft also incorporated backwards compatibility for older versions of SQL Server thus allowing a newer version of SSMS to connect to older versions of SQL Server instances.

Starting from version 11, the application was based on the [Visual Studio 2010](https://en.wikipedia.org/wiki/Visual_Studio_2010) shell, using [WPF](https://en.wikipedia.org/wiki/Windows_Presentation_Foundation) for the user interface.

In June 2015, Microsoft announced their intention to release future versions of SSMS independently of SQL Server database engine releases.[[3]](https://en.wikipedia.org/wiki/SQL_Server_Management_Studio#cite_note-3).

## 6.4PYTHON

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python’s elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

The Python interpreter and the extensive standard library are freely available in source or binary form for all major platforms from the Python web site, <https://www.python.org/>, and may be freely distributed. The same site also contains distributions of and pointers to many free third party Python modules, programs and tools, and additional documentation.

The Python interpreter is easily extended with new functions and data types implemented in C or C++ (or other languages callable from C). Python is also suitable as an extension language for customizable applications.

This tutorial introduces the reader informally to the basic concepts and features of the Python language and system. It helps to have a Python interpreter handy for hands-on experience, but all examples are self-contained, so the tutorial can be read off-line as well.

For a description of standard objects and modules, see [The Python Standard Library](https://docs.python.org/3/library/index.html#library-index). [The Python Language Reference](https://docs.python.org/3/reference/index.html#reference-index) gives a more formal definition of the language. To write extensions in C or C++, read [Extending and Embedding the Python Interpreter](https://docs.python.org/3/extending/index.html#extending-index) and [Python/C API Reference Manual](https://docs.python.org/3/c-api/index.html#c-api-index). There are also several books covering Python in depth.

This tutorial does not attempt to be comprehensive and cover every single feature, or even every commonly used feature. Instead, it introduces many of Python’s most noteworthy features, and will give you a good idea of the language’s flavor and style. After reading it, you will be able to read and write Python modules and programs, and you will be ready to learn more about the various Python library modules described in [The Python Standard Library](https://docs.python.org/3/library/index.html#library-index).

Python strives for a simpler, less-cluttered syntax and grammar while giving developers a choice in their coding methodology. In contrast to [Perl](https://en.wikipedia.org/wiki/Perl)'s "[there is more than one way to do it](https://en.wikipedia.org/wiki/There_is_more_than_one_way_to_do_it)" motto, Python embraces a "there should be one—and preferably only one—obvious way to do it" philosophy.[[64]](https://en.wikipedia.org/wiki/Python_(programming_language)#cite_note-PEP20-64) [Alex Martelli](https://en.wikipedia.org/wiki/Alex_Martelli), a [Fellow](https://en.wikipedia.org/wiki/Fellow) at the [Python Software Foundation](https://en.wikipedia.org/wiki/Python_Software_Foundation) and Python book author, wrote: "To describe something as 'clever' is not considered a compliment in the Python culture."[[65]](https://en.wikipedia.org/wiki/Python_(programming_language)#cite_note-AutoNT-19-65)

Python's developers strive to avoid [premature optimization](https://en.wikipedia.org/wiki/Premature_optimization), and reject patches to non-critical parts of the [CPython](https://en.wikipedia.org/wiki/CPython) reference implementation that would offer marginal increases in speed at the cost of clarity.[[66]](https://en.wikipedia.org/wiki/Python_(programming_language)#cite_note-AutoNT-20-66) When speed is important, a Python programmer can move time-critical functions to extension modules written in languages such as C; or use [PyPy](https://en.wikipedia.org/wiki/PyPy), a [just-in-time compiler](https://en.wikipedia.org/wiki/Just-in-time_compilation). [Cython](https://en.wikipedia.org/wiki/Cython) is also available, which translates a Python script into C and makes direct C-level API calls into the Python interpreter.

Python's developers aim for it to be fun to use. This is reflected in its name—a tribute to the British comedy group [Monty Python](https://en.wikipedia.org/wiki/Monty_Python)[[67]](https://en.wikipedia.org/wiki/Python_(programming_language)#cite_note-AutoNT-24-67)—and in occasionally playful approaches to tutorials and reference materials, such as examples that refer to spam and eggs (a reference to a [Monty Python sketch](https://en.wikipedia.org/wiki/Spam_(Monty_Python))) instead of the standard [foo and bar](https://en.wikipedia.org/wiki/Foobar).[[68]](https://en.wikipedia.org/wiki/Python_(programming_language)#cite_note-68)[[69]](https://en.wikipedia.org/wiki/Python_(programming_language)#cite_note-69)

## 6.5 DJANGO

With Django, you can take web applications from concept to launch in a matter of hours. Django takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It’s free and open source.

Django ([/ˈdʒæŋɡoʊ/](https://en.wikipedia.org/wiki/Help:IPA/English) [JANG-goh](https://en.wikipedia.org/wiki/Help:Pronunciation_respelling_key); sometimes stylized as django)[[6]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-6) is a [Python](https://en.wikipedia.org/wiki/Python_(programming_language))-based [free and open-source](https://en.wikipedia.org/wiki/Free_and_open-source_software) [web framework](https://en.wikipedia.org/wiki/Web_framework) that follows the model–template–views (MTV) [architectural pattern](https://en.wikipedia.org/wiki/Architectural_pattern_(computer_science)).[[7]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-faq-mvc-7)[[8]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-djangobook-mvc-8) It is maintained by the [Django Software Foundation](https://en.wikipedia.org/wiki/Django_Software_Foundation) (DSF), an independent organization established in the US as a [501(c)(3)](https://en.wikipedia.org/wiki/501(c)(3)) non-profit.

Django's primary goal is to ease the creation of complex, database-driven websites. The framework emphasizes [reusability](https://en.wikipedia.org/wiki/Reusability) and "pluggability" of components, less code, low coupling, rapid development, and the principle of [don't repeat yourself](https://en.wikipedia.org/wiki/Don%27t_repeat_yourself).[[9]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-9) Python is used throughout, even for settings, files, and data models. Django also provides an optional administrative [create, read, update and delete](https://en.wikipedia.org/wiki/Create,_read,_update_and_delete) interface that is generated dynamically through [introspection](https://en.wikipedia.org/wiki/Type_introspection) and configured via admin models.

Some well-known sites that use Django include [Instagram](https://en.wikipedia.org/wiki/Instagram),[[10]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-10) [Mozilla](https://en.wikipedia.org/wiki/Mozilla_Foundation),[[11]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-11) [Disqus](https://en.wikipedia.org/wiki/Disqus),[[12]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-12) [Bitbucket](https://en.wikipedia.org/wiki/Bitbucket),[[13]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-13) [Nextdoor](https://en.wikipedia.org/wiki/Nextdoor)[[14]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-14) and [Clubhouse](https://en.wikipedia.org/wiki/Clubhouse_(app)).[[15]](https://en.wikipedia.org/wiki/Django_(web_framework)#cite_note-15)

The Model-View-Template (MVT) is slightly different from MVC. In fact the main difference between the two patterns is that Django itself takes care of the Controller part (Software Code that controls the interactions between the Model and View), leaving us with the template. The template is a HTML file mixed with Django Template Language (DTL).

Django comes with a lightweight web server for developing and testing applications. This server is pre-configured to work with Django, and more importantly, it restarts whenever you modify the code.

# CHAPTER 7- SYSTEM STUDY

**7.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

* ECONOMICAL FEASIBILITY
* TECHNICAL FEASIBILITY
* SOCIAL FEASIBILITY

**ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

# CHAPTER 8-TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

**SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

**8.1Non Functional Requirements**

Non-functional requirements are the quality requirements that stipulate how well software does what it has to do. These are Quality attributes of any system; these can be seen at the execution of the system and they can also be the part of the system architecture.

**8.2 Accuracy:**

The system will be accurate and reliable based on the design architecture. If there is any problem in the accuracy then the system will provide alternative ways to solve the problem.

**8.3 Usability:**

The proposed system will be simple and easy to use by the users. The users will comfort in order to communicate with the system. The user will be provided with an easy interface of the system.

**8.4 Accessibility:**

The system will be accessible through internet and there should be no any known problem.

* 1. **Performance:**

The system performance will be at its best when performing the functionality of the system.

* 1. **Reliability:**

The proposed system will be reliable in all circumstances and if there is any problem that will be affectively handle in the design.

* 1. **Security:**

The proposed system will be highly secured; every user will be required registration and username/password to use the system. The system will do the proper authorization and authentication of the users based on their types and their requirements. The proposed system will be designed persistently to avoid any misuse of the application.

# CHAPTER 9-SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product It is the process of exercising software with the intent of ensuring that the

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

**TYPES OF TESTS**

**Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

**Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

**Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

**System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

**White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

**Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

**9.1 Unit Testing:**

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

**Test strategy and approach**

Field testing will be performed manually and functional tests will be written in detail.

**Test objectives**

* All field entries must work properly.
* Pages must be activated from the identified link.
* The entry screen, messages and responses must not be delayed.

**Features to be tested**

* Verify that the entries are of the correct format
* No duplicate entries should be allowed
* All links should take the user to the correct page

**9.2 Integration Testing**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

**9.3 Acceptance Testing**

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

# 

# CHAPTER 10– CONCLUSIONS

Our study has investigated the problem of food waste that has many serious side effects economically and socially. However, the wastage of the food can be prevented or at least decreased using political rules and technology. Mobile application technology is beneficial for food waste management. The app aims to encourage better food management. Our proposed solution should reduce food wastage by facilitating food sharing in community using mobile technology. This work is an initial step towards designing a better system to reduce daily food waste.

**Future Enhancement:**

In future, this app could be enhanced more by adding the following features:

* Extending our app to have many types of donating users either from organizations such as restaurants, or a family or a single user
* Adding the location (GPS) facility to our apps. The donating user should specify the location of the shared food.
* Adding the time and date of each meal shared by users
* Making the app supports multiple platforms (crossplatform app)

# CHAPTER 11- REFERENCES

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# CHAPTER 12- CODING

Python.form

from django.db import models

from django.contrib.auth.models import User

from django.conf import settings

from .models import \*

from django.dispatch import receiver #add this

from django.db.models.signals import post\_save #add this

#DataFlair Models

class Food(models.Model):

loggeduser= models.CharField(max\_length = 50, default='Food Items')

foodname = models.CharField(max\_length = 50)

foodpic = models.ImageField()

quantity = models.CharField(max\_length = 30, default='Food Qty')

contactno = models.CharField(max\_length = 10)

location = models.TextField(default = 'Address')

city= models.CharField(max\_length =50)

def \_\_str\_\_(self):

return self

class Order(models.Model):

foodname = models.CharField(max\_length = 50)

foodpic = models.ImageField()

quantity = models.CharField(max\_length = 30, default='Food Qty')

contactno = models.CharField(max\_length = 10)

location = models.TextField(default = 'Address')

city= models.CharField(max\_length =50)

loggeduser= models.CharField(max\_length = 50)

foodcreateuser=models.CharField(max\_length = 50)

deliverycontact=models.CharField(max\_length = 10)

deliverymail=models.EmailField()

deliveryaddress = models.TextField(default = 'Address')

def \_\_str\_\_(self):

return self

class Profile(models.Model):

user = models.OneToOneField(User, on\_delete=models.CASCADE)

@receiver(post\_save, sender=User)

def create\_user\_profile(sender, instance, created, \*\*kwargs):

if created:

Profile.objects.create(user=instance)

@receiver(post\_save, sender=User)

def save\_user\_profile(sender, instance, \*\*kwargs):

instance.profile.save()