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Web Design Application Programming Interface (API) Smart Accounting Software

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ABSTRACT: -

In today's world, there is a need for a cloud-based accounting system that can be used by any person with minimum knowledge of computers. People from different business backgrounds spend a hefty amount of money for managing their finances. We as a team have the aim to provide a solution for every business to maintain resources efficiently without spending a fortune on software or human resources.

Introduction

Accounting across the world is a tedious task, is an idea of developing a cohesive cloud-based accounting system for a variety of different businesses. The feature set includes email and bank integration, team collaboration, efficient and effective user interface, shortcut navigation system and a reporting system.

The aim is to provide a solution for every business to maintain resources efficiently without spending a fortune on software or human resources. The technology that will be built in the form of a Web and API (Application Programming Interface) in smart accounting applications is expected to be able to make the account management process more effective and efficient.

Based on problems in Accounting and its relation to current technological developments, it is necessary to create a web-based information system to store and record all the data obtained during the planting process, the maintenance process to the crop harvesting process. The system created is also equipped with an API to support related applications.

Problem Formulation

The need for a cloud-based accounting system that is also scalable. Small businesses and institutions today use new technologies to improve the management of resources. Some of these solutions include MS Excel, Tally 9 or proprietary enterprise resource planning software (ERP).

Most of these solutions are counter-intuitive and lack features like visual reporting or remote access through mobile.

Considering this, the aim is to develop hybrid accounting software that is easy to use and offers an array of features to fit the needs of a variety of businesses.

Literature Review

A. Scientific Study

The following describes several related studies
regarding the API web service:

a) Saputri & Mulyono (2019), Analysis and Design of a Management Information System for Web-Based Harvest Reporting at the Jambi Province Food Crops Accounting Service. The information system built supports the process of recording, processing, searching for data to the process of presenting reports. So, the information system built will be very supportive in presenting information that supports decision making.

b) Elmayati & Hazilawati (2019), Design of an SMS Gateway-Based Information System for Agricultural Product Extension in Musi Rawas District. By utilizing the SMS Gateway technology, farmers in the Musi Rawas district will find it easier to obtain information about agricultural crop cultivation procedures, agricultural commodity prices and agricultural issues. In addition, the implementation of agricultural extension activities will be easier and able to reach remote areas.

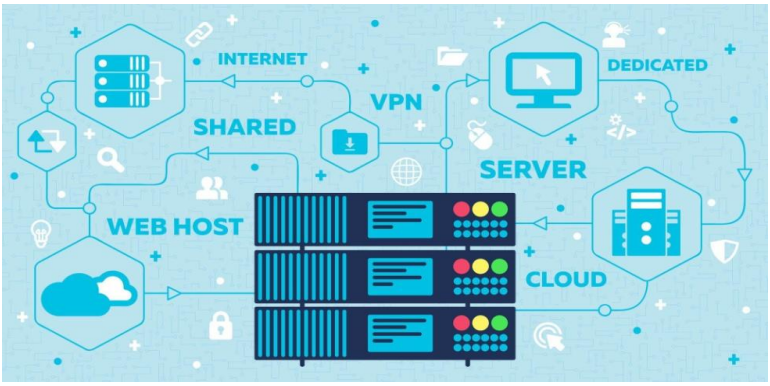
c) Perkasa & Setiawan (2018), Community Data Web Service Development Using REST API with Access Token. In this study, the application provides a web service data for the community to create and register job seeker cards using data from the Population and Civil Registry Service. This application is able to provide and facilitate many parties, such as data administrators to monitor data usage, employee registration in data input, and people can register independently.

d) Wulandari, Ugiarto, & Hairah, (2017), Information System for Herbal Medicines. This information system contains information about herbal medicinal plants, the substances contained in these plants, properties and methods of processing these plants so that they can be used to become herbal medicinal plants. The information system that was built aims to facilitate the public in searching for information on herbal medicine.

e) Sundari (2016), Web-Based Information System for Community Health Center Services. This patient service information system is designed to improve manual systems that are slow so that services become ineffective and efficient, so that a computerized information system is built, making it easier for the Public Health Center to process patient data and patient medical records into reports.

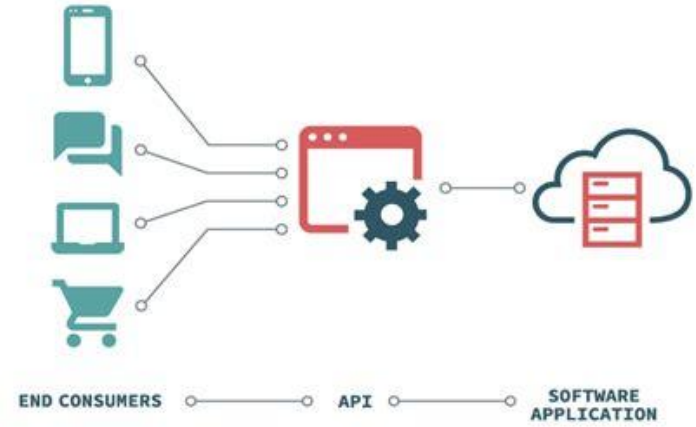
B. WEB

Definition of the website according to the Cambridge dictionary (Cambridge Dictionary , n.d.): a set of pages of information on the internet about a specific subject, which have been published by the same person, company, or organization, and often contain images, videos, and sounds. A website is a collection of interrelated, publicly accessible Web pages that share a single domain name. Websites can be created and maintained by individuals, groups, businesses or organizations to serve various purposes. Together, all publicly accessible websites constitute the World Wide Web (Technopedia, n.d.). Website is a web page that is interconnected which generally contains a collection of information in the form of text data, images, animation, audio, video or a combination of all that is usually made for personal, organization and company (Indowebsite, n.d.). Picture 1 shows the information and features contained in the website.



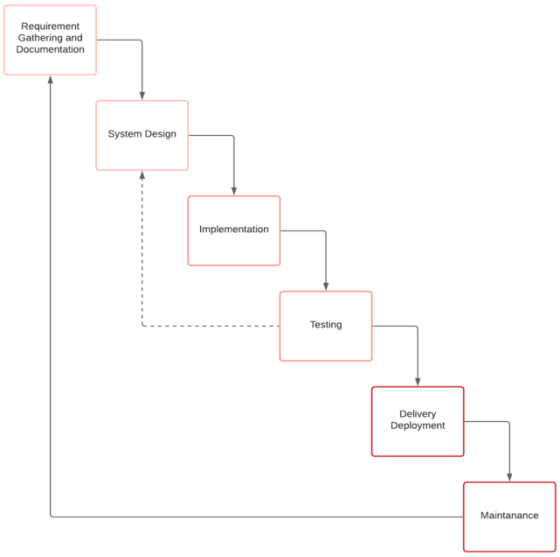
C. API

API stands for Application Programming Interface, and allows developers to integrate two parts of an application or with different applications simultaneously. API consists of various elements such as functions, protocols, and other tools that allow developers to create applications. The purpose of using the API is to speed up the development process by providing separate functions so that developers don't have to build similar features. Implementation of the API will be very felt if the desired feature is very complex, of course it takes time to create something similar to it. For example: integration with a payment gateway. There are various types of system APIs that can be used, including operating systems, libraries, and the web. Web API is accessed via the HTTP protocol, this is a concept not a technology. We can create a Web API using different technologies such as NodeJS, Express, Spring, Flask, etc. For example, the Rest API from Twitter provides read and write access to data by integrating Twitter into our own application
(Sandi, 2017).



Methodology

The methodology to be used in this research is by using the Waterfall method which is part of the Software Development Life Cycle (SDLC) model. The stages of this model start from the system analysis stage, system design and so on to the system maintenance stage. The cycle of the waterfall model can be seen in Picture

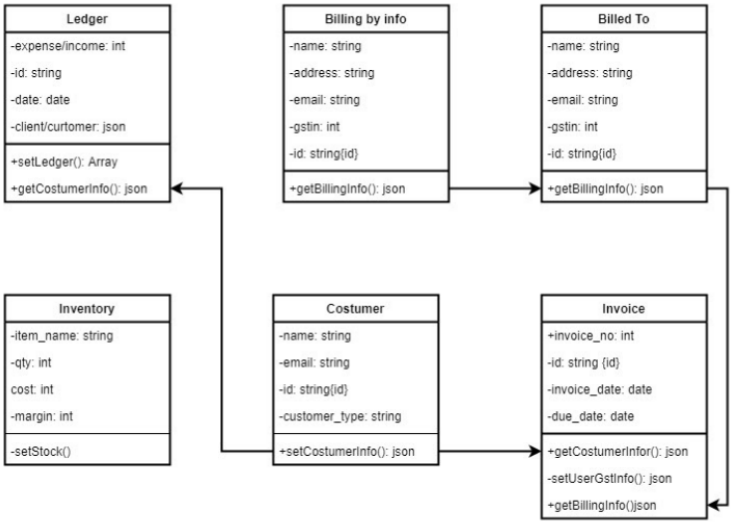


D. System Analysis

At the system analysis stage, an analysis of the problems and systems to be built is carried out. Analysis is needed to determine system requirements, starting from the form of data to be processed by the system to analyzing system requirements in building APIs so that they can become data bridges for various devices.

E. System Design

At this stage, the system planning is carried out according to the system requirements that have been determined at the system analysis stage. The system to be built is the web and API. The web will receive data from hydroponic plants, while the data received will be displayed on the web and stored in the database as data that will be given to android devices through the help of an API. The flow of the system is as shown in Picture



F. Program Coding

At the coding stage, namely creating a web and API using a programming language based on the system design that has been made.

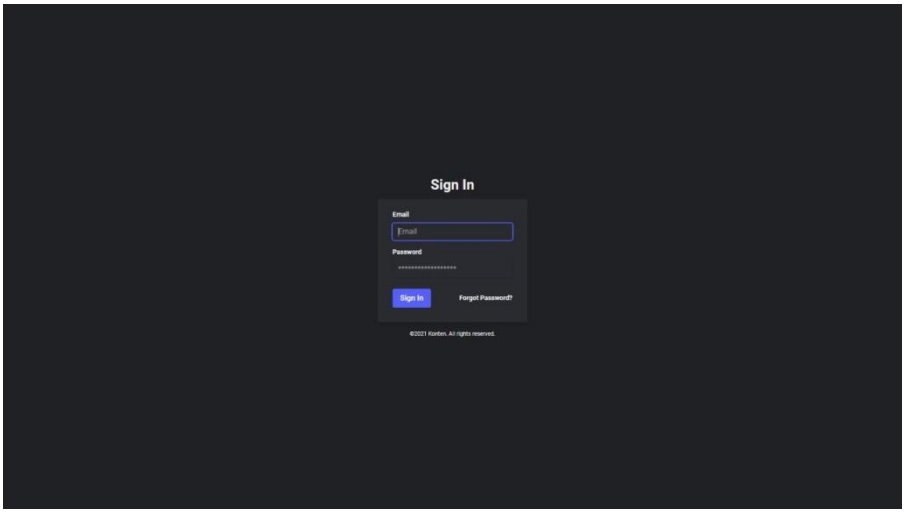
G. System Implementation

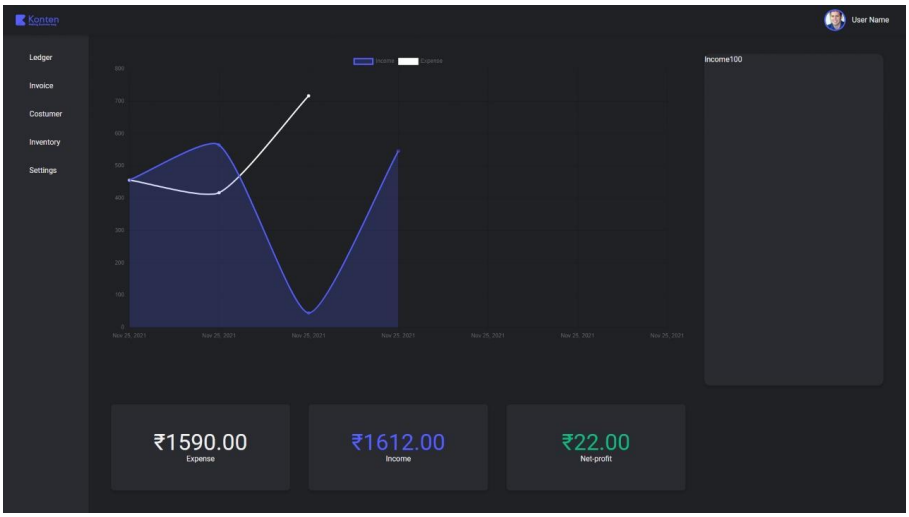
The implementation stage is the stage for implementing a system that is made ready for use. The system is implemented according to plan, namely

receiving data from hydroponic gardens and displaying it on the web and storing it in a database server. The system also provides data to the android device according to the data request from the android device.

Result Discussions

Here are the following users snapshots of using and maintaining the accounts using a web based interface.





Conclusion

From the results of the discussion carried out in the research "Designing Web and API (Application Programming Interface) Smart Farming Applications" it can be concluded that the web and API in the smart farming application can receive, store and display hydroponic plant data and provide that data on an android device. . This achievement will facilitate monitoring of hydroponic plants as part of a smart farming system.

Acknowledgment

In successfully completing this project, many people have helped us. We would like to thank all those who are related to this project. Primarily, we would like to thank Dr Kamal Kumar Sethi (Head of Department) and Prof. Narendra Pal Singh (Sr. Assistant Professor), also our co-ordinator Prof. Kavit Namdev under whose guidance we learned a lot about this project. Their suggestions and directions have helped in the completion of this project.

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