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Abstract:

Cloud services are used in our day-to-day activities. This paper aims at creation of application which depicts Drop box for storing and sharing files. These days, all of us are having lots of unused and important data like images related to their childhood, copy of their important document etc., by this application, users can save data in cloud and access their information anytime. Even if they lost the data accidentally it will be available in drop box and can get their copy back. They can also modify the data they have stored in the application. We construct cloud storage service to upload the files, download files and share the files between the team members of a group which will be useful for the team to share their work and perform collaborative work, through the internet. It brings people associated with a project to work together, other than dispersed crosswise different communication channels. In this dropbox all the files are stored in AWS S3 bucket in cloud. Thus providing a secure and convenient web application for individuals and groups to make people work better and designing a simpler way to keep the files in sync.

Introduction:

Data is growing almost daily, also these days this is creating crucial role. The key factor for advance development in technology is the growth in data. Supervising the immense amount of information leads to advance growth in technology. Handling data includes processes like collecting the data, storing it, securing the data from various malicious attacks and distributing the data.

This development of information lead to increment in the usage of cloud design to store and manage information by limiting the issue to keep up consistency and precision. As clients of headway, we have to make and devour information which is basic for the fundamental of the clarified framework which would assist us with managing the information.

The engineering plan of cloud gives the capacity to download and transfer records and organizers from different gadgets until all the gadgets are associated through web. This is accomplished by utilizing S3 buckets.

Among all, drop box is most famous distributed storage administrations which permit us to store and offer records in online. By utilizing drop box, we can store records, reinforcement them and access them when required from anyplace and any framework as long as we are associated through web. Documents which are put away on Dropbox's workers and can be synchronized, or naturally stayed up with the latest, on the entirety of your gadgets. The essential Dropbox administration is free, however you can overhaul for an expense to get more extra room and extra highlights.

The best recognition of Dropbox is it enables us to store files easily online. The following are uses of Dropbox:

Edit your documents from anywhere:

We can initiate working on document from any place and complete the work at any other place. All the data are maintained and synced properly. Integrity of information is well maintained. We can start a document at work, work on it from our mobile on the way home, and finish it at home. The users of Dropbox mobile application for the iOS or the Android can rearrange their files on their mobile utilizing the Microsoft Office mobile applications and then have their modifications undoubtedly synchronized and saved to all their respective devices.

Sharing files from anywhere: One can distribute one of folders on Dropbox, by that all others could approach it. We can even assign e-mail links to all others to download files — also along with the confidentiality.

The Backup of crucial files: One could do the backing up their files in case work or the home computer goes high in the flames.

Collaborate with others: If we need one central place for friends or colleagues to

submit documents, we need set up a Dropbox folder into which we can upload their files. Everyone using the folder also has approach to all other documents in it. If the users are on their mobiles, they could modify files utilizing the applications of Microsoft Office.

The Dropbox is tool which allows one to store documents – PDFs, MSWord docs, MS Excel documents, and pictures and so on.

- It enables approach to these files – From all of the one's electronic devices
 - It enables us to share the files – With individuals, groups, distribution lists
- Why we use it

Enable access to your own files – From all of the electronic devices

- Share files with others
- Manage file sharing

Background:

For creating this web application mainly we use SQLite3, Flask Framework and AWS S3.

SQLite3:

SQLite is widely utilized engine for database. The file format of SQLite is very stable, zero-configuration, cross-platform, self-contained, transactional, server less, and backward compatible. It is quick and also lightweight and whole database is stored in one disk file. It is utilized in many of the applications as an internal storage. Files of the SQLite database are very frequently utilized as the containers in order to transmit rich and high content in between the systems. SQLite code which is source is there in domain which is public and is costless for everybody to utilize for any function. Here, the measure of the web traffic that the SQLite depends on how website utilizes its database. It is easy to setup and utilize. Standard Library of the python builds module known as the “SQLite3” designated for working along with database. SQLite3 introduces important changes like denser format for database files, manifest typing, efficiently stores large objects, support both UTF-8 and UTF-16 text, query serialization API,

BLOB (Binary Large Object) support and improved concurrency. It is utilized to build database, tables defining, insert, run queries, change rows and administer the file of SQLite database. We use SQLite3 to store the signup form data and we use that data to verify the login credentials entered by the user. We use function sqlite3.connect to associate to database and then we can insert the data.

Flask Framework:

The flask is the framework of web that administers us with the tools, libraries and also the technologies that grant us to assemble the web application. Flask, python class data type and written in python. After importing flask we need to build the instance of class of Flask for our web. Users can select the tool and libraries they want to choose. It is constructed in order for it getting established quickly and easily, with capacity to rate up to compound applications. It also offers suggestions but doesn't impose any of vulnerabilities or layout of project. Here, flask confides on template engine of Jinja and toolkit of Werkzeug. In our application for frontend we used Flask frameworks. We utilized Flask 0.12.2, Flask-Bootstrap 3.3.7.1, jinja2 (2.10) – This one is engine for template and werkzeug 0.14.1 – it is library to utility for WSGI. Jinja2 is template engine of python utilized to constituteXML, HTML or some other markup patterns that were rebounded to userutilising it. WSGI is used to forward the requests from a web server to a backend python web application. Superiority of utilizing Flask is, this scheme is light and uncertainty for experiencing Flask Preservation is basic. Firstly, we must know essentials of python before utilizing Flask. Here, package of flask could be instituted from package of python index. It has direct idea of approaching a SQL. In flask the programmer controls everything.

Features:

- It is based on Unicode.
- Unified backing to unit testing.
- RESTful request dispatching.

- Developments accessible to enlarge features desired.
- It offers access to extensions to better functionalities.
- It allows the creation of secure cookies.

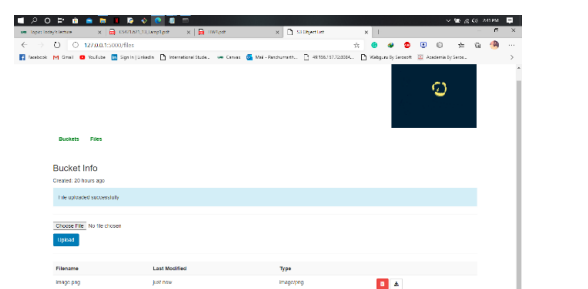
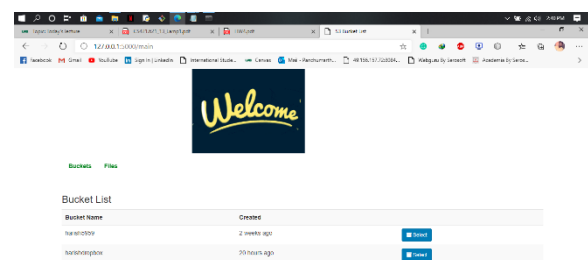
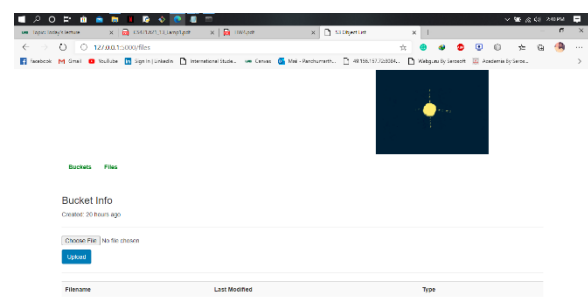
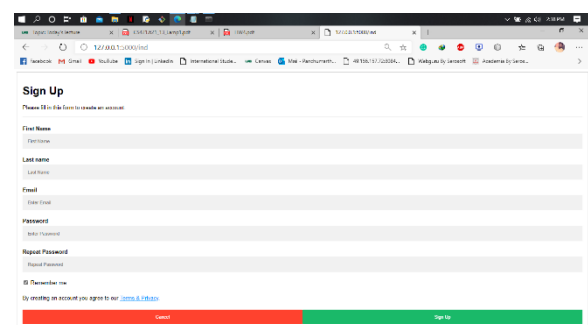
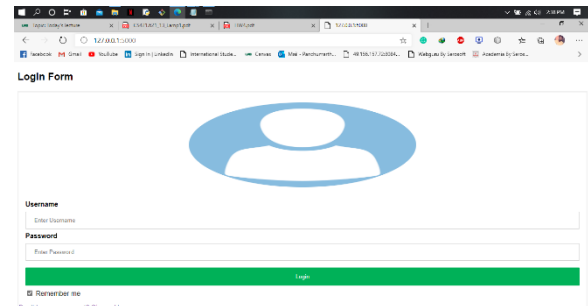
AWS S3:

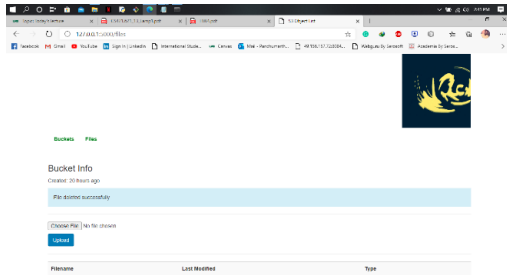
The AWS S3, a service for storage which grants anyone in order to store the details in form of objects is recommended by Amazon Web Service. It is highly extensible, great speed, less expensive, security, data availability, performance and web-based service. It is online storage solution which can be preserved and approached over internet. It yields web service that could be utilized to accumulate and recapture unlimited rate of information ranging from video, images and audio at any time. It is constructed with nominal features that focus on directness and vitality. It grants effortlessly to utilize executive details so we can organize the data and meet specific requirements. In Amazon S3, buckets are containers for objects stocked in Amazon S3. Here, Objects could be some object information and Meta details. Each object in bucket is having specifically one key. Access privileges to S3 buckets can be specified through AWS console. First we must construct bucket in AWS region of our own and give it globally particular name. We could stock infinite rate of information and upload infinite objects into Amazon S3 bucket. Only the authenticated users can upload or download permissions. Before stocking something at Amazon S3, we must setup an account on AWS or log into the existing account. The reason we use S3 is, it eliminates all the cost and effort required to build and maintain servers that store the data and also it encrypts our data and securely store it. In our application we use Amazon S3 buckets to upload and download the data. User's data will be stored in S3 bucket.

Design and Implementation:

Design:

The design of our Dropbox is illustrated by using the screenshots of the application:





Implementation:

We used the following tools.

- **Arrow (0.12.1):**

This is one among Python modules which provides human interactive, sensible approach to create, manipulate, formats that convert date, times and timestamps. It involves and will be updating plugging gaps in functionality, date time type and by maintaining intelligent module API which can support multiple creation scenarios. It is user friendly and Time zone conversion.

- **Boto 3 (1.5.31):**

This is kit of software development, which AWS grants to ease the cooperation with S3 APIs and also another service like EC2 which is called as Elastic Compute Cloud. With the help of Boto3, we could line up all buckets of S3, create the instances of EC2 or control numerous resources of AWS.

- **Botocore(1.8.45):**

It is an interface for increasing number of Web Services of Amazon. It provides access to all the services and operations available in the service. It handles the low-level information about the request and the results from a service, clients, sessions and credential information.

- **click(6.7):**

Click, the service which permits uncomplicated devices to generate functions of AWS Lambda which could implement any action. It is mainly used for creating command line interfaces quick and with minimal code.

- **Docutils(2.3.1):**

Docutils, the system of open-source processing of text, which creates and provides tools for converting a plaintext documentation into different functional formats, such as HTML, man-pages, Latex, open document or else XML. It includes text that is restructured (rewriting the structured text), the easy to read, easy to use, what-you-see-is-what-you-get plaintext markup language.

- **Flask(0.12.2):**

Flask is a scheme which is based up on Jinja2 and Werkzeug, certainly written in Python language. It is even called lightweight WSGI, web scheme and mainly used to constitute applications of web ranging from uncomplicated to complex. It is relatively simple, easy to use, and well documented. It provides extensions, libraries and tools for the application.

- **Flask-Bootstrap(3.3.7.1):**

Flask-Bootstrap will be packaging bootstrap amongst extension which importantly contains blueprint called 'bootstrap'. It has a Bootstrap template which is useful for generating application for web. It creates and provides new templates.

- **Jinja2(2.10):**

Jinja, the template engine which is fully featured for purpose of Python. It has full Unicode support, an optional integrated sandboxed execution environment,

broadly utilized and BSD authorized.

- **Jmespath(0.9.3):**

JMESPath will be allowing one to analytically regulate in order how to sever elements from document of JSON.

- **Markup safe(1.0):**

Markup Safe completes object of text which leaves characters such that it would be safeguarded to utilize in XML, HTML and so on. Characters that have uncommon implications are supplanted so that they display as the actual characters. This mitigates injection attacks, which means untrusted client details, can securely be displayed on a page.

- **Python-dateutil(2.6.1):**

The dateutil module contributes compelling developments for the ideal module of date time module, reachable for Python.

- **S3transfer(0.1.3):**

S3transfer is a Python library for managing Amazon S3 transfers.

- **Werkzeug(0.14.1):**

Werkzeug is a comprehensive WSGI library of web application. This initiated as elementary compilation of diverse utilities for applications of WSGI and became one among most gradual SGI utility libraries.

- **SQLITE3**

The SQLite project contributes necessary program of the command line called as sqlite3 which will be granting client to arrive manually and then complete SQL queries in opposition to database of SQLite or against an archive of ZIP. This document gives a short introduction on how to utilize the sqlite3 program.

- **Virtual environment.**

A virtual environment is mechanism which will be assisting by managing dependencies needed by projects which are distinct separate by composing confined virtual environments of python for them.

- **S3 bucket**

Amazon (S3) is called as Simple Storage Service which is an offering being offered through AWS called as Amazon web services which grant users to store data in the form of objects. It is intended to take into account immense range of users, from enterprises to small organizations or individual projects. S3 could be utilized to stock details ranging from video, images and also audio all way up to static data, backups, or website among others. An S3 bucket is named repository resource utilized to stock details on AWS. It is likened to a folder that is used to store data on AWS. Buckets have special names and based on the tier and pricing, users receive different levels of redundancy and accessibility at various prices.

Discussion:

Implementation:

We are keen on learning new things, therefore we have picked Flask, Python and SQLite3. For this application the primary tools are Python and HTML. Other tools used are

Arrow(0.12.1)

Boto3 (1.5.31)

Flask-Bootstrap(3.3.7.1)

botocore(1.8.45)

click(6.7)

docutils(2.3.1)

Flask(0.12.2)

Itsdangerous(0.24)

dominate(2.3.1)

Jinja2(2.10)

Jmespath(0.9.3)
Markupsafe(1.0)
Python-dateutil(2.6.1)
S3transfer(0.1.3)
Werkzeug(0.14.1)

Limitations:

As we are not expertise in Flask, so we are unable to create the separate session for each user.

Lessons Learned:

- Creation of the virtual environment for the flask server using Linux.
- Implementation of the Flask framework, SQLite database and Python tools.
- Syncing S3 bucket of AWS to our Flask application.

Task Distribution:

(a)Front end: Mansi Somayajula, Amulya Valupadasu

(b)File operations and file syncing in aws: Gauri Ganesh Kalkundri, Lakshmi Shivani Reddy Bommineni

(c)User login, signup, buckets syncing, database linking and linking front end and backend in flask: Harish Panchumarthi

Report: Mansi Somayajula,
AmulyaValupadasu, Lakshmi Shivani
Reddy Bommineni
Presentation: Gauri Ganesh Kalkundri

Conclusion and Future Work:

Hence, the drop box is created by using HTML, CSS, SQLite3, and Flask Framework and with the help of AWS S3 bucket the storage of files is done. This drop box thus created is really user friendly by allowing all the customers using this to share and store their files at any time and also from anywhere.

Information if lost accidentally can be retrieved back from this drop box anytime as the details are stored very securely and safely. Future work can be explained as following: This project is mainly being created so that any project group can utilize it for reference. Further this project can be extended in such a way that when a user is logged in he can utilize any bucket that is displayed. And also in future user module can be created and it helps to create separate session for each user which helps to protect the others files.

Also we can create sharable links to share the files in every way possible for the users. Hence all these things can be expected as a future work for this project.

References:

- <https://stackabuse.com/file-management-with-aws-s3-python-and-flask/>
- <https://boto3.amazonaws.com/v1/documentation/api/latest/index.html>
- <https://medium.com/@paulgoetze/uploading-files-to-google-cloud-storage-using-a-flask-api-part-1-7a4e379911d7>
- <https://fabianlee.org/2020/01/11/python-using-flask-to-upload-files/>
- <https://stackabuse.com/file-management-with-aws-s3-python-and-flask/>
- <https://flask.palletsprojects.com/en/1.1.x/>
- <https://www.sqlite.org/index.html>
- <https://aws.amazon.com/s3/>
- <https://ieeexplore.ieee.org/document/7417235>
- <https://ieeexplore.ieee.org/document/8455117>
- <https://pypi.org/project/python-dateutil/>
- <https://sqlite.org/cli.html>
- <https://epsagon.com/development/aws-lambda-and-python-flask-getting-started/>
- <https://cwiki.apache.org/confluence/display/ARROW>
- <https://morioh.com/p/96c14275cdbe>

- xvi. [https://docs.aws.amazon.com/Ama
zonS3/latest/dev/Welcome.html](https://docs.aws.amazon.com/Ama
zonS3/latest/dev/Welcome.html)
- xvii. [https://en.wikipedia.org/wiki/Ama
zon_S3](https://en.wikipedia.org/wiki/Ama
zon_S3)
- xviii. [https://www.stitchdata.com/resour
ces/aws-s3/](https://www.stitchdata.com/resour
ces/aws-s3/)
- xix. [https://fredhutch.github.io/easybui
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3.6.7-foss-2016b-fh2/](https://fredhutch.github.io/easybui
ld-life-sciences/python/Python-
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