

BITS Pilani

CLOUD APP- BITSY-THE CHAT BOT

Cloud Computing (CCZG527)

Assignment - 1

Submitted By:

PRASHANT SINGH- 2023MT03125

JALAMANCHILI RAMA SURYAM- 2023MT03101

KAKANI VARSHITHA- 2023MT03002

SRUTHI KRISHNAMURTHY- 2023MT03003

Submitted To:

PROF. ADITYA GOEL

INCLUDEPICTURE
"https://upload.wikimedia.org/wikiped
ia/en/thumb/d/d3/BITS_Pilani-
Logo.svg/1200px-BITS_Pilani-
Logo.svg.png" * MERGEFORMATINET

Dec 02, 2023

Executive Summary

Using chatbots, you can immediately engage website visitors with personalized messaging. Depending on your target market's demographics, where they came from, the content they are interacting with, and where they are in the purchasing process, you may create customized chatbots for each page of your website or audience.

BITSY is a system which BITS WILP Students can use to choose the subjects they want to study and the teachers they want to study the subjects from. The chatbot provides the answers to the relevant questions.

OBJECTIVE

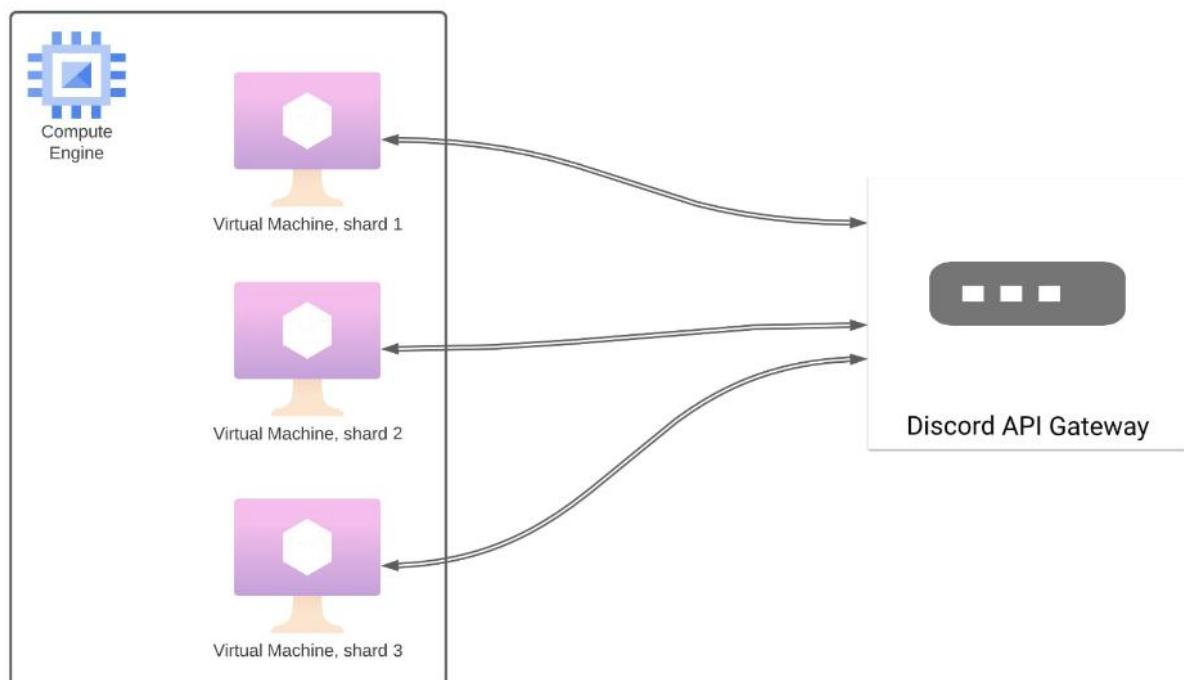
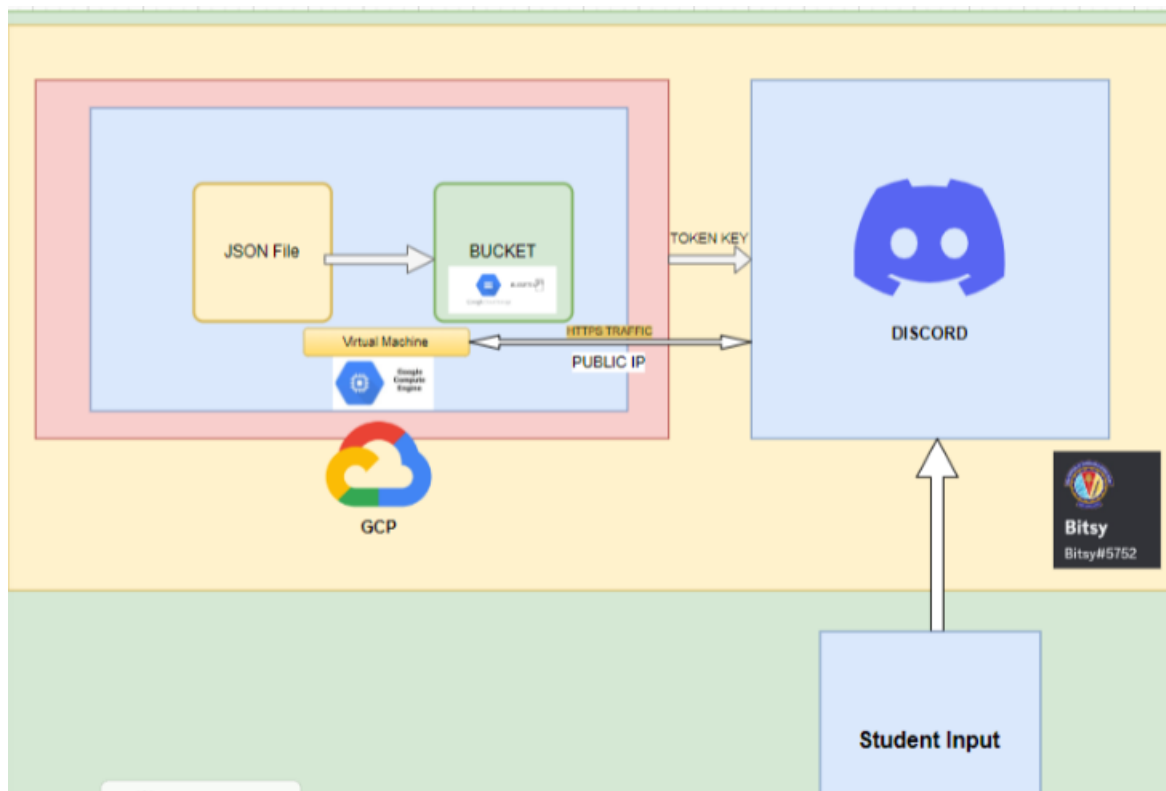
Software programs called chatbots mimic human speech. In order to simulate real-world interactions and respond to consumer inquiries, they adhere to a set of pre-designed rules.

Additionally, chatbots that employ artificial intelligence (AI) and natural language processing (NLP) are able to interpret these exchanges almost as well as a human.

Using chatbots, you can immediately engage website visitors with personalized messaging.

Depending on your target market's demographics, where they came from, the content they are interacting with, and where they are in the purchasing process, you may create customized chatbots for each page of your website or audience.

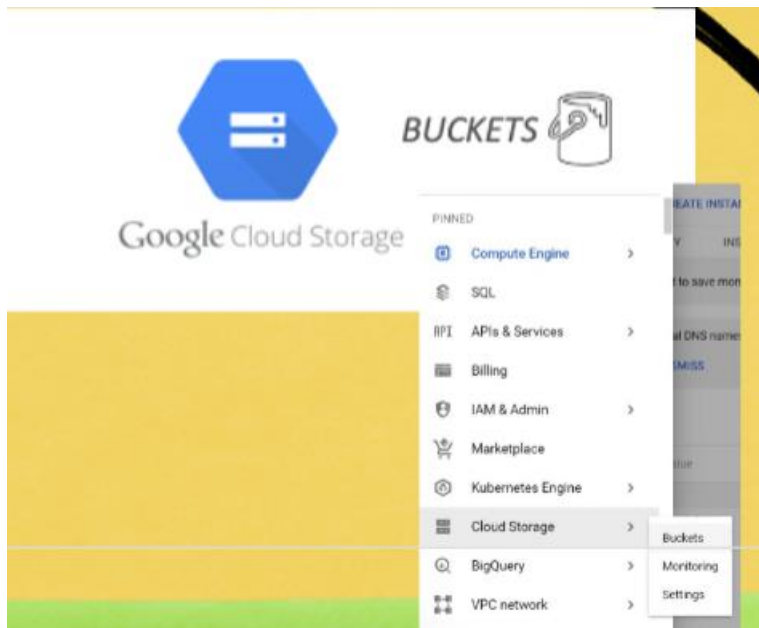
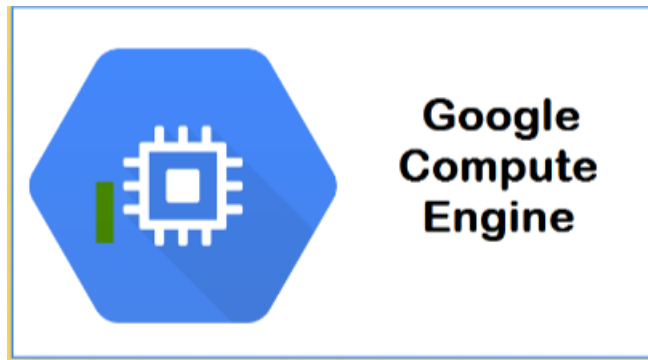
ARCHITECTURE OF THE APPLICATION



CLOUD PLATFORM USAGE

We are using GCP cloud here to host our application which will then connect to DISCORD the messaging app via the API call.

We used the below services in GCP To host with additional configuration



Additional configurations needed for our Application to Run as below to setup EC instance:

Google Cloud cloud-platform Search (/) for resources, docs, products, and more

← Create an instance

to create a VM instance, select one of the options:

- New VM instance**
Create a single VM instance from scratch
- New VM instance from template**
Create a single VM instance from an existing template
- New VM instance from machine image**
Create a single VM instance from an existing machine image
- Marketplace**
Deploy a ready-to-go solution onto a VM instance

MANAGE TAGS AND LABELS

Region * europe-west1 (Belgium) Zone * europe-west1-b
Region is permanent Zone is permanent

Machine configuration

☒ General purpose ☐ Compute optimized ☐ Memory optimized ☐ GPUs

Machine types for common workloads, optimized for cost and flexibility

| | Series ? | Description | vCPUs ? | Memory ? | PI |
|----------------------------------|----------|--------------------------------|-----------|--------------|-----|
| <input type="radio"/> | C3 | Consistently high performance | 4 - 176 | 8 - 1,408 GB | Int |
| <input type="radio"/> | C3D | Consistently high performance | 4 - 360 | 8 - 2,880 GB | AI |
| <input checked="" type="radio"/> | E2 | Low cost, day-to-day computing | 0.25 - 32 | 1 - 128 GB | Be |
| <input type="radio"/> | N2 | Balanced price & performance | 2 - 128 | 2 - 864 GB | Int |
| <input type="radio"/> | N2D | Balanced price & performance | 2 - 224 | 2 - 896 GB | AI |

CREATE **CANCEL** **EQUIVALENT CODE**

Machine type

Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. [Learn more](#)

PRESET

CUSTOM

e2-standard-8 (8 vCPU, 4 core, 32 GB memory)



vCPU

8 (4 cores)

Memory

32 GB

✓ ADVANCED CONFIGURATIONS

Availability policies

VM provisioning model

Standard

Choose "Spot" to get a discounted, preemptible VM. Otherwise, stick to "Standard". [Learn more](#)

Boot disk ?

| | |
|----------------|--------------------------------|
| Type | New standard persistent disk |
| Size | 10 GB |
| License type ? | Free |
| Image | Debian GNU/Linux 11 (bullseye) |

CHANGE

Identity and API access ?

Service accounts ?

Service account

Compute Engine default service account

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

Access scopes ?

- ☐ Allow default access
- ☒ Allow full access to all Cloud APIs
- ☐ Set access for each API

Firewall ?

Add tags and firewall rules to allow specific network traffic from the Internet

- ☐ Allow HTTP traffic
- ☒ Allow HTTPS traffic
- ☐ Allow Load Balancer Health Checks

Additional configurations needed for our Application to Run as below to storage setup:

← Create a bucket

✓ Name your bucket

Name: test-sk-pb

• Choose where to store your data

This choice defines the geographic placement of your data and affects cost, performance, and availability. Cannot be changed later. [Learn more](#)

Location type

- ☐ Multi-region
Highest availability across largest area
- ☐ Dual-region
High availability and low latency across 2 regions
- ☒ Region
Lowest latency within a single region

europa-west1 (Belgium) ▼

CONTINUE

• Choose a storage class for your data

A storage class sets costs for storage, retrieval, and operations, with minimal differences in uptime. Choose if you want objects to be managed automatically or specify a default storage class based on how long you plan to store your data and your workload or use case. [Learn more](#)

☐ Autoclass ?

Automatically transitions each object to Standard or Nearline class based on object-level activity, to optimize for cost and latency. Recommended if usage frequency may be unpredictable. Can be changed to a default class at any time. [Pricing details](#)

☒ Set a default class

Applies to all objects in your bucket unless you manually modify the class per object or set object lifecycle rules. Best when your usage is highly predictable. Can't be changed to Autoclass once the bucket is created.

☒ Standard ?

Best for short-term storage and frequently accessed data

☐ Nearline

Best for backups and data accessed less than once a month

☐ Coldline

Best for disaster recovery and data accessed less than once a quarter

☐ Archive

Best for long-term digital preservation of data accessed less than once a year

• Choose how to control access to objects

Prevent public access

Restrict data from being publicly accessible via the internet. Will prevent this bucket from being used for web hosting. [Learn more](#)

☒ Enforce public access prevention on this bucket

Access control

☒ Uniform

Ensure uniform access to all objects in the bucket by using only bucket-level permissions (IAM). This option becomes permanent after 90 days. [Learn more](#)

☐ Fine-grained

Specify access to individual objects by using object-level permissions (ACLs) in addition to your bucket-level permissions (IAM). [Learn more](#)

CONTINUE


- **Choose how to protect object data**

Your data is always protected with Cloud Storage but you can also choose from these additional data protection options to prevent data loss. Note that object versioning and retention policies cannot be used together.


Protection tools

☐ None

☐ Object versioning (for data recovery)

For restoring deleted or overwritten objects. To minimize the cost of storing versions, we recommend limiting the number of noncurrent versions per object and scheduling them to expire after a number of days. [Learn more](#) 

☒ Retention policy (for compliance)

For preventing the deletion or modification of the bucket's objects for a specified minimum duration of time after being uploaded. [Learn more](#) 

Duration *

2

days



CODE SNIPPET DEPLOYED ON THE COMPUTE ENGINE

```
import discord
import key
from neuralintents import GenericAssistant
import nltk
import gcsfs
import json

gcs_file_system = gcsfs.GCSFileSystem(project="gcp_project_name")
gcs_json_path = "gs://test-sk-pb/intents-bits.json"
with gcs_file_system.open(gcs_json_path) as f:
    json_dict = json.load(f)

client = discord.Client()
@client.event
async def on_ready():
    print("connected")

@client.event
async def on_message(message):
    if message.author == client.user:
        return
    if message.content.startswith("!bitsy"):
        response = chatbot.request(message.content[9:])
        await message.channel.send(response)

if __name__ == "__main__":
    nltk.download("omw-1.4")
    chatbot = GenericAssistant("intents-bits.json")
    chatbot.train_model()
    chatbot.save_model()
    print("model done training and saving")

    client.run(key.TOKEN)
```

STEPS TO EXECUTE THE BOT:

1. Start the VM on GCP and Let the BOT train as we are calling the train_model() method from the from bucket data stored in Json.
2. Launch the DISCORD server and connect to the bot using TOKEN.
3. Once connection established and BOT is running and completed learning, BITS BOT On DISCORD will become online
4. Ask the questions as shown in the output below.

BOT LEARNING FROM DATA AND GETTING READY FOR INTERACTIVE SESSION

```

Epoch 191/200
56/56 [=====] - 0s 1ms/step - loss: 0.0969 - accuracy: 0.9713
Epoch 192/200
56/56 [=====] - 0s 1ms/step - loss: 0.0838 - accuracy: 0.9713
Epoch 193/200
56/56 [=====] - 0s 1ms/step - loss: 0.0794 - accuracy: 0.9642
Epoch 194/200
56/56 [=====] - 0s 1ms/step - loss: 0.1299 - accuracy: 0.9642
Epoch 195/200
56/56 [=====] - 0s 1ms/step - loss: 0.0499 - accuracy: 0.9857
Epoch 196/200
56/56 [=====] - 0s 1ms/step - loss: 0.1007 - accuracy: 0.9677
Epoch 197/200
56/56 [=====] - 0s 1ms/step - loss: 0.0508 - accuracy: 0.9892
Epoch 198/200
56/56 [=====] - 0s 1ms/step - loss: 0.1103 - accuracy: 0.9677
Epoch 199/200
56/56 [=====] - 0s 1ms/step - loss: 0.0731 - accuracy: 0.9677
Epoch 200/200
56/56 [=====] - 0s 1ms/step - loss: 0.0441 - accuracy: 0.9892
model done training and saving
connected

```

OUTPUT:

The screenshot displays a Discord chat window. On the left, a sidebar shows navigation options: 'Find or start a conversation', 'Friends', 'Shop', and 'DIRECT MESSAGES' with a '+' icon. Below these are icons for 'Sks', a green plus icon, a green checkmark icon, and a green download icon. The main chat area shows a conversation with a bot named 'Bitsy' (BOT). The messages are as follows:

- Bitsy (BOT)** Today at 2:46 PM: You are supposed to take the courses sent to you on email by the Dean or HOD. Other than that, you can select any UE(University Elective) which captivates your interest (only after second semester).
- Sruthi krishnamurthy** Today at 2:47 PM: !bitsy EC3 passing criteria
- Bitsy (BOT)** Today at 2:47 PM: In Theory component you need min 40%
In Lab component, min 50%
In Project component, min 50%
- Sruthi krishnamurthy** Today at 2:47 PM: !bitsy How to apply for re evaluation in EC3
- Bitsy (BOT)** Today at 2:47 PM: You have to apply for re-evaluation on Taxila. After marks are uploaded on Taxila you have to pay 100 Rs for paper seeing on Taxila and only after that you can proceed to apply for re-evaluation by paying Rs 400

At the bottom of the chat area, there is a text input field with the placeholder 'Message @Bitsy' and icons for adding attachments, GIFs, and emojis. On the right side of the chat window, there is a profile card for 'Bitsy' (Bitsy#5752 BOT). It includes a profile picture, the name 'Bitsy', the ID 'Bitsy#5752', and the text 'DISCORD MEMBER SINCE Dec 2, 2023'. Below this is a 'NOTE' section with the text 'Click to add a note'.