Experiment 1: Intelligent Agent

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Aim: To develop a simple intelligent agent using python and identify a task environment for it.

Theory:

1. <u>Agent</u>: An agent is anything that can perceive its environment through its sensors and can act upon it with the help of its actuators.
2. <u>Task Environment</u>: Task environments are essentially the "problems" to which rational agents are the "solutions."
3. <u>Performance measurement</u>: Performance measures are the desirable qualities that we want our agent to have.
4. <u>Environment</u>: Environment is everything present around the agent. Agent perceives the environment.
5. <u>Actuators</u>: Actuators are the elements of the agent through which the agent performs certain tasks.
6. <u>Sensors</u>: Sensors are the elements of the agent through which the agent perceives the environment.

Performance Measures	Environment	Actuators	Sensors
Number of words present, accurate conversion of the text, choosing the language that you want.	Room and the vicinity	speakers	File, text

Code:

text_to_speech.py

```python
from gtts import gTTS
import os

mytext = 'Machine learning (ML) is the study of computer algorithms that
can improve automatically through experience and by the use of data.'

language = 'fr'

myobj = gTTS(text=mytext, lang=language, slow=False)

myobj.save("output.mp3")

os.system("start output.mp3")
```

text_file_to_speech.py

```python
from gtts import gTTS
import os

fh = open("test.txt", "r")
myText = fh.read().replace("\n", " ")

language = 'en'

output = gTTS(text=myText, lang=language, slow=False)

output.save("output.mp3")
fh.close()

os.system("start output.mp3")
```

Conclusion:

From this experiment, I learned to develop a simple agent that helps to convert text to speech. Initially, I was using NLP, but I faced many issues with the same. Some Informal phrases, expressions, idioms couldn't be converted to speech and were thus missed. Also, there was a barrier to language conversion. The current model solves all the above issues and completes the work smoothly, even helping to convert the text of one language to the speech of another language. The library used is gtts, which derives its data from Google. This helps my intelligent agent to convert the text of one language to the speech of another. Also, a text file can be directly be used to do the same.

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