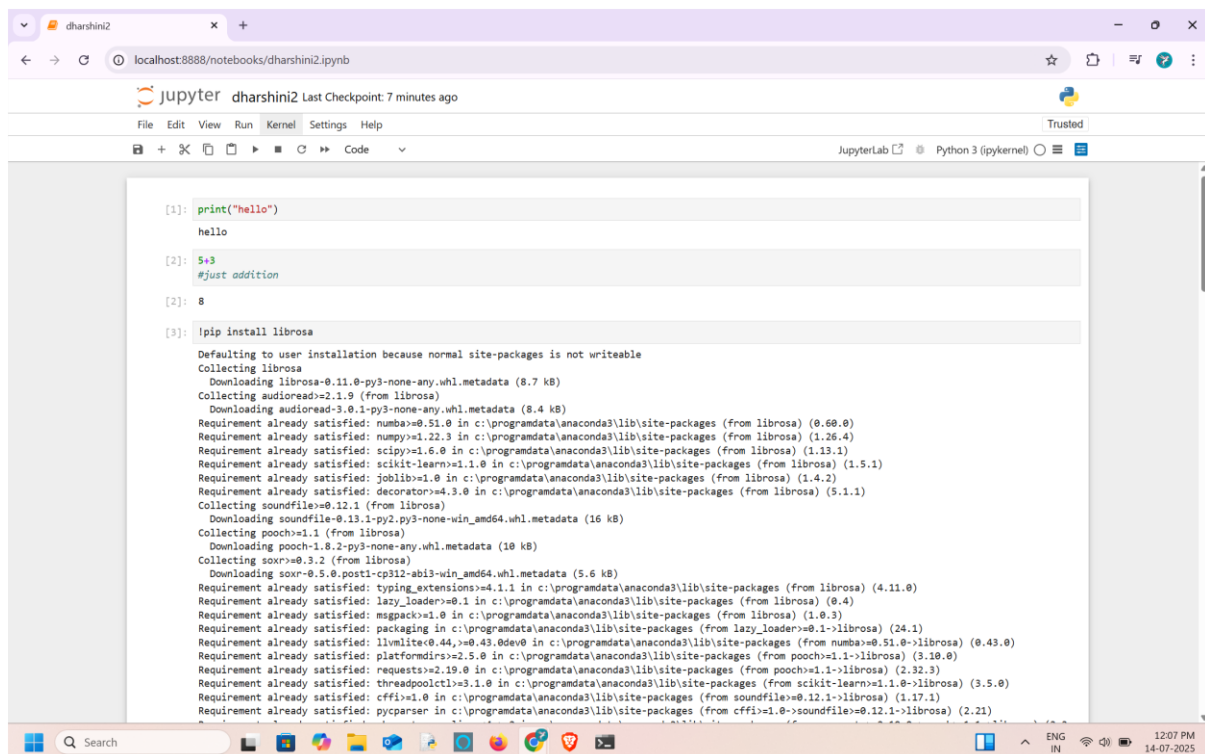


NAME: DHARSHINI R

REG NO: 22MID0132

PYTHON PACKAGE – LIBROSA

Librosa is a python package for music and audio analysis. It provides the building blocks necessary to create music information retrieval systems.



The screenshot shows a JupyterLab window with a browser address bar at localhost:8888/notebooks/dharshini2.ipynb. The JupyterLab interface includes a menu bar (File, Edit, View, Run, Kernel, Settings, Help) and a toolbar. The main area displays a code cell with the following content:

```
[1]: print("hello")
hello

[2]: 5+3
#just addition

[2]: 8

[3]: !pip install librosa
```

The output of the third cell shows the installation process for librosa, including downloading metadata and dependencies. The output text is as follows:

```
Defaulting to user installation because normal site-packages is not writeable
Collecting librosa
  Downloading librosa-0.11.0-py3-none-any.whl.metadata (8.7 kB)
Collecting audioread>=2.1.9 (from librosa)
  Downloading audioread-3.0.1-py3-none-any.whl.metadata (8.4 kB)
Requirement already satisfied: numba>=0.51.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (0.60.0)
Requirement already satisfied: numpy>=1.22.3 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.26.4)
Requirement already satisfied: scipy>=1.6.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.13.1)
Requirement already satisfied: scikit-learn>=1.1.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.5.1)
Requirement already satisfied: joblib>=1.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.4.2)
Requirement already satisfied: decorator>=4.3.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (5.1.1)
Collecting soundfile>=0.12.1 (from librosa)
  Downloading soundfile-0.13.1-py2.py3-none-win_amd64.whl.metadata (16 kB)
Collecting pooch>=1.1 (from librosa)
  Downloading pooch-1.8.2-py3-none-any.whl.metadata (10 kB)
Collecting soxr>=0.3.2 (from librosa)
  Downloading soxr-0.5.0.post1-cp312-abi3-win_amd64.whl.metadata (5.6 kB)
Requirement already satisfied: typing_extensions>=4.1.1 in c:\programdata\anaconda3\lib\site-packages (from librosa) (4.11.0)
Requirement already satisfied: lazy_loader>=0.1 in c:\programdata\anaconda3\lib\site-packages (from librosa) (0.4)
Requirement already satisfied: msgpack>=1.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.0.3)
Requirement already satisfied: packaging in c:\programdata\anaconda3\lib\site-packages (from lazy_loader>=0.1->librosa) (24.1)
Requirement already satisfied: llvmlite>=0.44.>=0.43.0dev0 in c:\programdata\anaconda3\lib\site-packages (from numba>=0.51.0->librosa) (0.43.0)
Requirement already satisfied: platformdirs>=2.5.0 in c:\programdata\anaconda3\lib\site-packages (from pooch>=1.1->librosa) (3.10.0)
Requirement already satisfied: requests>=2.19.0 in c:\programdata\anaconda3\lib\site-packages (from pooch>=1.1->librosa) (2.32.3)
Requirement already satisfied: threadpoolctl>=3.1.0 in c:\programdata\anaconda3\lib\site-packages (from scikit-learn>=1.1.0->librosa) (3.5.0)
Requirement already satisfied: cffi>=1.0 in c:\programdata\anaconda3\lib\site-packages (from soundfile>=0.12.1->librosa) (1.17.1)
Requirement already satisfied: pycparser in c:\programdata\anaconda3\lib\site-packages (from cffi>=1.0->soundfile>=0.12.1->librosa) (2.21)
```

The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system clock indicates 12:07 PM on 14-07-2025.

```
Collecting audioread<3.0.1-py3-none-any.whl.metadata (8.4 kB)
Requirement already satisfied: numba<0.51.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (0.60.0)
Requirement already satisfied: numpy>=1.22.3 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.26.4)
Requirement already satisfied: scipy>=1.6.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.13.1)
Requirement already satisfied: scikit-learn>=1.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.5.1)
Requirement already satisfied: joblib>=1.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.4.2)
Requirement already satisfied: decorator>=4.3.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (5.1.1)
Collecting soundfile>=0.12.1 (from librosa)
  Downloading soundfile-0.13.1-py2.py3-none-win_amd64.whl.metadata (16 kB)
Collecting pooch>=1.1 (from librosa)
  Downloading pooch-1.8.2-py3-none-any.whl.metadata (10 kB)
Collecting soxr>=0.3.2 (from librosa)
  Downloading soxr-0.5.0.post1-cp312-abi3-win_amd64.whl.metadata (5.6 kB)
Requirement already satisfied: typing_extensions>=4.1.1 in c:\programdata\anaconda3\lib\site-packages (from librosa) (4.11.0)
Requirement already satisfied: lazy_loader>=0.1 in c:\programdata\anaconda3\lib\site-packages (from librosa) (0.4)
Requirement already satisfied: msgpack>=1.0 in c:\programdata\anaconda3\lib\site-packages (from librosa) (1.0.3)
Requirement already satisfied: packaging in c:\programdata\anaconda3\lib\site-packages (from lazy_loader>=0.1->librosa) (24.1)
Requirement already satisfied: llvmlite<0.44, >=0.43.0dev0 in c:\programdata\anaconda3\lib\site-packages (from numba>=0.51.0->librosa) (0.43.0)
Requirement already satisfied: platformdirs>=2.5.0 in c:\programdata\anaconda3\lib\site-packages (from pooch>=1.1->librosa) (3.10.0)
Requirement already satisfied: requests>=2.19.0 in c:\programdata\anaconda3\lib\site-packages (from pooch>=1.1->librosa) (2.32.3)
Requirement already satisfied: threadpoolctl>=3.1.0 in c:\programdata\anaconda3\lib\site-packages (from scikit-learn>=1.0->librosa) (3.5.0)
Requirement already satisfied: cffi>=1.0 in c:\programdata\anaconda3\lib\site-packages (from soundfile>=0.12.1->librosa) (1.17.1)
Requirement already satisfied: pycparser in c:\programdata\anaconda3\lib\site-packages (from cffi>=1.0->soundfile>=0.12.1->librosa) (2.21)
Requirement already satisfied: charset-normalizer<4, >=2 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (3.3.2)
Requirement already satisfied: idna<4, >=2.5 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (3.7)
Requirement already satisfied: urllib3<3, >=1.21.1 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2024.8.30)
Download librosa-0.11.0-py3-none-any.whl (260 kB)
Download audioread-3.0.1-py3-none-any.whl (23 kB)
Download pooch-1.8.2-py3-none-any.whl (64 kB)
Download soundfile-0.13.1-py2.py3-none-win_amd64.whl (1.0 MB)
----- 0.0/1.0 MB ? eta -:--:--
----- 0.3/1.0 MB ? eta -:--:--
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----- 0.8/1.0 MB 1.3 MB/s eta 0:00:01
----- 1.0/1.0 MB 1.2 MB/s eta 0:00:00
Download soxr-0.5.0.post1-cp312-abi3-win_amd64.whl (164 kB)
Installing collected packages: soxr, audioread, soundfile, pooch, librosa
Successfully installed audioread-3.0.1 librosa-0.11.0 pooch-1.8.2 soundfile-0.13.1 soxr-0.5.0.post1
```

Error I came up with,

```
[4]: import librosa

audio_file = "my_audio.wav"
y, sr = librosa.load(
    audio_file,
    sr=22050, # resample to 22.05 kHz instead of keeping original
    mono=True, # down-mix to mono if the file is stereo
    duration=10.0 # only read the first 10 seconds
)
print(f"Signal shape: {y.shape} | Sample rate: {sr}")

C:\ProgramData\anaconda3\lib\site-packages\paramiko\pkey.py:82: CryptographyDeprecationWarning: TripleDES has been moved to cryptography.hazmat.decrepit.
ciphers.algorithms.TripleDES and will be removed from this module in 48.0.0.
  "cipher": algorithms.TripleDES,
C:\ProgramData\anaconda3\lib\site-packages\paramiko\transport.py:219: CryptographyDeprecationWarning: Blowfish has been moved to cryptography.hazmat.decr
epit.ciphers.algorithms.Blowfish and will be removed from this module in 45.0.0.
  "class": algorithms.Blowfish,
C:\ProgramData\anaconda3\lib\site-packages\paramiko\transport.py:243: CryptographyDeprecationWarning: TripleDES has been moved to cryptography.hazmat.decr
epit.ciphers.algorithms.TripleDES and will be removed from this module in 48.0.0.
  "class": algorithms.TripleDES,
C:\Users\dhars\AppData\Local\Temp\ipykernel_12824\3991456122.py:4: UserWarning: PySoundFile failed. Trying audioread instead.
  y, sr = librosa.load(
C:\Users\dhars\AppData\Roaming\Python\Python312\site-packages\librosa\core\audio.py:184: FutureWarning: librosa.core.audio._audioread_load
Deprecated as of librosa version 0.10.0.
It will be removed in librosa version 1.0.
  y, sr_native = _audioread_load(path, offset, duration, dtype)
LibsndfileError                                Traceback (most recent call last)
File ~\AppData\Roaming\Python\Python312\site-packages\librosa\core\audio.py:176, in load(path, sr, mono, offset, duration, dtype, res_type)
    175 try:
--> 176 y, sr_native = _soundfile_load(path, offset, duration, dtype)
    178 except sf.SoundFileRuntimeError as exc:
    179 # If soundfile failed, try audioread instead
File ~\AppData\Roaming\Python\Python312\site-packages\librosa\core\audio.py:209, in _soundfile_load(path, offset, duration, dtype)
```

```
dharsini2 x +
localhost:8888/notebooks/dharsini2.ipynb
jupyter dharsini2 Last Checkpoint: 8 minutes ago
File Edit View Run Kernel Settings Help Trusted
JupyterLab Python 3 (ipykernel)
--> 184 y, sr_native = __audioread_load(path, offset, duration, dtype)
185 else:
186     raise exc
File C:\ProgramData\Anaconda3\Lib\site-packages\decorator.py:232, in decorate.<locals>.fun(*args, **kw)
230 if not kwsyntax:
231     args, kw = fix(args, kw, sig)
--> 232 return caller(func, *(extras + args), **kw)
File ~\AppData\Roaming\Python\Python312\site-packages\librosa\util\decorators.py:63, in deprecated.<locals>.__wrapper(func, *args, **kwargs)
54 """Warn the user, and then proceed."""
55 warnings.warn(
56     "{!s} is deprecated as of librosa version {!s}."
57     "\nIt will be removed in librosa version {!s}.".format(
61         stacklevel=3, # Would be 2, but the decorator adds a level
62     )
--> 63 return func(*args, **kwargs)
File ~\AppData\Roaming\Python\Python312\site-packages\librosa\core\audio.py:240, in __audioread_load(path, offset, duration, dtype)
237 reader = path
238 else:
239     # If the input was not an audioread object, try to open it
--> 240 reader = audioread.audio_open(path)
241 with reader as input_file:
242     sr_native = input_file.samplerate
File ~\AppData\Roaming\Python\Python312\site-packages\audioread\_init_.py:127, in audio_open(path, backends)
125 for BackendClass in backends:
126     try:
--> 127         return BackendClass(path)
128     except DecodeError:
129         pass
File ~\AppData\Roaming\Python\Python312\site-packages\audioread\rawread.py:59, in RawAudioFile.__init__(self, filename)
58 def __init__(self, filename):
--> 59 self._fh = open(filename, 'rb')
61 try:
62     self._file = aifc.open(self._fh)
FileNotFoundError: [Errno 2] No such file or directory: 'my_audio.wav'
```

Rectified the error:

```
dharsini2 x +
localhost:8888/notebooks/dharsini2.ipynb
jupyter dharsini2 Last Checkpoint: 9 minutes ago
File Edit View Run Kernel Settings Help Trusted
JupyterLab Python 3 (ipykernel)
Requirement already satisfied: idna<4,>=2.5 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2024.8.30)
Downloading librosa-0.11.0-py3-none-any.whl (260 kB)
Downloading audioread-3.0.1-py3-none-any.whl (23 kB)
Downloading pooch-1.8.2-py3-none-any.whl (64 kB)
Downloading soundfile-0.13.1-py2.py3-none-win_amd64.whl (1.0 MB)
----- 0.0/1.0 MB ? eta -:--:--
----- 0.3/1.0 MB ? eta -:--:--
----- 0.5/1.0 MB 1.3 MB/s eta 0:00:01
----- 0.8/1.0 MB 1.3 MB/s eta 0:00:01
----- 1.0/1.0 MB 1.2 MB/s eta 0:00:00
Downloading soxr-0.5.0.post1-cp312-ab3-win_amd64.whl (164 kB)
Installing collected packages: soxr, audioread, soundfile, pooch, librosa
Successfully installed audioread-3.0.1 librosa-0.11.0 pooch-1.8.2 soundfile-0.13.1 soxr-0.5.0.post1

[*]: import librosa

audio_path = librosa.ex('trumpet')
y, sr = librosa.load(
    audio_path,
    sr=22050, # resample
    mono=True, # mix to mono
    duration=10.0 # read first 10 s
)
print(f"Loaded {audio_path}\nSamples: {y.shape[0]} | Sample-rate: {sr}")
Downloading file 'sorohanro_-_solo-trumpet-06.ogg' from 'https://librosa.org/data/audio/sorohanro_-_solo-trumpet-06.ogg' to 'C:\Users\dhars\AppData\Local\librosa\librosa\Cache'.
```

```
dharsini2 x +
localhost:8888/notebooks/dharsini2.ipynb
jupyter dharsini2 Last Checkpoint: 9 minutes ago
File Edit View Run Kernel Settings Help Trusted
JupyterLab Python 3 (ipykernel)
Requirement already satisfied: idna<4,>=2.5 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2024.8.30)
Downloading librosa-0.11.0-py3-none-any.whl (260 kB)
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Downloading pooch-1.8.2-py3-none-any.whl (64 kB)
Downloading soundfile-0.13.1-py2.py3-none-win_amd64.whl (1.0 MB)
----- 0.0/1.0 MB ? eta -:-:--
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----- 0.5/1.0 MB 1.3 MB/s eta 0:00:01
----- 0.8/1.0 MB 1.3 MB/s eta 0:00:01
----- 1.0/1.0 MB 1.2 MB/s eta 0:00:00
Downloading soxr-0.5.0.post1-cp312-ab13-win_amd64.whl (164 kB)
Installing collected packages: soxr, audioread, soundfile, pooch, librosa
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[*]: import librosa

audio_path = librosa.ex('trumpet')
y, sr = librosa.load(
    audio_path,
    sr=22050, # resample
    mono=True, # mix to mono
    duration=10.0 # read first 10 s
)
print(f'Loaded {audio_path}\nSamples: {y.shape[0]} | Sample-rate: {sr}')

Downloading file 'sorohanro_-_solo-trumpet-06.ogg' from 'https://librosa.org/data/audio/sorohanro_-_solo-trumpet-06.ogg' to 'C:\Users\dhars\AppData\Local\librosa\librosa\Cache'.
```

```
dharsini2 x +
localhost:8888/notebooks/dharsini2.ipynb
jupyter dharsini2 Last Checkpoint: 16 minutes ago
File Edit View Run Kernel Settings Help Trusted
JupyterLab Python 3 (ipykernel)
Requirement already satisfied: idna<4,>=2.5 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in c:\programdata\anaconda3\lib\site-packages (from requests>=2.19.0->pooch>=1.1->librosa) (2024.8.30)
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Downloading soundfile-0.13.1-py2.py3-none-win_amd64.whl (1.0 MB)
----- 0.0/1.0 MB ? eta -:-:--
----- 0.3/1.0 MB ? eta -:-:--
----- 0.5/1.0 MB 1.3 MB/s eta 0:00:01
----- 0.8/1.0 MB 1.3 MB/s eta 0:00:01
----- 1.0/1.0 MB 1.2 MB/s eta 0:00:00
Downloading soxr-0.5.0.post1-cp312-ab13-win_amd64.whl (164 kB)
Installing collected packages: soxr, audioread, soundfile, pooch, librosa
Successfully installed audioread-3.0.1 librosa-0.11.0 pooch-1.8.2 soundfile-0.13.1 soxr-0.5.0.post1

[5]: import librosa

audio_path = librosa.ex('trumpet')
y, sr = librosa.load(
    audio_path,
    sr=22050, # resample
    mono=True, # mix to mono
    duration=10.0 # read first 10 s
)
print(f'Loaded {audio_path}\nSamples: {y.shape[0]} | Sample-rate: {sr}')

Downloading file 'sorohanro_-_solo-trumpet-06.ogg' from 'https://librosa.org/data/audio/sorohanro_-_solo-trumpet-06.ogg' to 'C:\Users\dhars\AppData\Local\librosa\librosa\Cache'.
Loaded C:\Users\dhars\AppData\Local\librosa\librosa\Cache\sorohanro_-_solo-trumpet-06.ogg
Samples: 117601 | Sample-rate: 22050
```