

Experiment No :- 07

Title: Spark's Python API

Aim: Study of Spark's Python API - pyspark package and MLlib.

Theory:

Spark APIs:

The Spark platform is easily accessible through Spark APIs available in Python, Scala, R, and Java. Together they make working with data in Spark simple and broadly accessible. During the inception of the Spark project, it only supported Scala/Java as the primary API. However, since one of the overarching objectives of Spark was to provide an easy interface to a diverse set of developers, the Scala API was followed by a Python and R API.

In Python, the PySpark package has become a widely used standard for writing Spark applications by the Python developer community. In R, users interact with Spark via the SparkR package. This is useful for R developers who may also be interested in working with data stored in a Spark ecosystem. Both of these languages are very prevalent in the Data Science community, and hence, the introduction of the Python and R APIs set the groundwork for democratizing Big Data Analytics on Spark for analytical use cases.

MLlib

MLlib is one of the flagship components of the Spark ecosystem. It provides a scalable, high-performance interface to perform resource intensive machine learning tasks in Spark. Additionally, MLlib can natively connect to HDFS, HBase, and other underlying storage systems supported in Spark. Due to this versatility, users do not need to rely on a pre-existing Hadoop environment to start using the algorithms built into MLlib.

Some of the supported algorithms in MLlib include:

Classification: logistic regression

Regression: generalized linear regression, survival regression and others Decision trees, random forests, and gradient-boosted trees

Recommendation: Alternating least squares

Clustering: K-means, Gaussian mixtures and others

Topic modeling: Latent Dirichlet allocation

Apriori: Frequent Itemsets, Association Rules

ML workflow utilities include:

Feature transformations: Standardization, normalization and others

ML Pipeline construction

Model evaluation and hyper-parameter tuning

ML persistence: Saving and loading models and Pipelines

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ sudo apt

update sudo apt install openjdk-11-jdk [sudo] password for hduser:

Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease

Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]

Hit:3 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease

Hit:4 https://dl.yarnpkg.com/debian stable InRelease

Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]

Fetched 257 kB in 13s (19.8 kB/s)

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

249 packages can be upgraded. Run 'apt list --upgradable' to see them.

W: https://dl.yarnpkg.com/debian/dists/stable/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section in apt-key(8) for details. Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following packages were automatically installed and are no longer required:

python3-cliapp python3-markdown python3-pygments python3-ttstatus Use 'sudo apt autoremove' to remove them. The following additional packages will be installed: fonts-dejavu-extra libatk-wrapper-java libatk-wrapper-java-jni libice-dev libpthread-stubs0dev libsm-dev libx11-dev libxau-dev libxcb1-dev libxdmcp-dev libxt-dev openjdk-11-jre x11proto-dev xorg-sgml-doctools xtrans-dev Suggested packages: libice-doc libsm-doc libx11-doc libxcb-doc libxt-doc openjdk-11-demo openjdk-11-source visualvm

The following NEW packages will be installed: fonts-dejavu-extra libatk-wrapper-java libatk-wrapper-java-jni libice-dev libpthread-stubs0dev libsm-dev libx11-dev libxau-dev libxcb1-dev libxdmcp-dev libxt-dev openjdk-11-jdk openjdk-11-jre x11proto-dev xorg-sgml-doctools xtrans-dev

0 upgraded, 16 newly installed, 0 to remove and 249 not upgraded.

Need to get 5,715 kB of archives.

After this operation, 17.2 MB of additional disk space will be used.

Do you want to continue? [Y/n] y

Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 fonts-dejavu-extra all 2.372build1 [2,041 kB]

Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libatk-wrapper-java all 0.38.0-5build1 [53.1 kB]

Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libatk-wrapper-java-jni amd64 0.38.0-5build1 [49.0 kB]

Get:4 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 xorg-sgml-doctools all 1:1.11-1.1 [10.9 kB]

Get:5 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 x11proto-dev all 2021.5-1 [604 kB]

Get:6 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libice-dev amd64 2:1.0.10-

1build2 [51.4 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libpthread-stubs0-dev amd64 0.4-1build2 [5,516 B]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libsm-dev amd64 2:1.2.3-1build2 [18.1 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libxau-dev amd64 1:1.0.9-1build5 [9,724 B]
Get:10 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libxdmcp-dev amd64 1:1.1.3-0ubuntu5 [26.5 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 xtrans-dev all 1.4.0-1 [68.9 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libxcb1-dev amd64 1.14-3ubuntu3 [86.5 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libx11-dev amd64 2:1.7.5-1ubuntu0.3 [744 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libxt-dev amd64 1:1.2.1-1 [396 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openjdk-11-jre amd64 11.0.24+8-1ubuntu3~22.04 [214 kB]
Get:16 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openjdk-11-jdk amd64 11.0.24+8-1ubuntu3~22.04 [1,336 kB]
Fetched 5,715 kB in 1min 10s (81.8 kB/s)
Selecting previously unselected package fonts-dejavu-extra.
(Reading database ... 205169 files and directories currently installed.) Preparing to unpack .../00-fonts-dejavu-extra_2.37-2build1_all.deb ...
Unpacking fonts-dejavu-extra (2.37-2build1) ...
Selecting previously unselected package libatk-wrapper-java.
Preparing to unpack .../01-libatk-wrapper-java_0.38.0-5build1_all.deb ...
Unpacking libatk-wrapper-java (0.38.0-5build1) ...
Selecting previously unselected package libatk-wrapper-java-jni:amd64.
Preparing to unpack .../02-libatk-wrapper-java-jni_0.38.0-5build1_amd64.deb ...
Unpacking libatk-wrapper-java-jni:amd64 (0.38.0-5build1) ... Selecting previously unselected package xorg-sgml-doctools.
Preparing to unpack .../03-xorg-sgml-doctools_1%3a1.11-1.1_all.deb ...
Unpacking xorg-sgml-doctools (1:1.11-1.1) ...
Selecting previously unselected package x11proto-dev.
Preparing to unpack .../04-x11proto-dev_2021.5-1_all.deb ...
Unpacking x11proto-dev (2021.5-1) ...
Selecting previously unselected package libice-dev:amd64.
Preparing to unpack .../05-libice-dev_2%3a1.0.10-1build2_amd64.deb ...
Unpacking libice-dev:amd64 (2:1.0.10-1build2) ...
Selecting previously unselected package libpthread-stubs0-dev:amd64.
Preparing to unpack .../06-libpthread-stubs0-dev_0.4-1build2_amd64.deb ...
Unpacking libpthread-stubs0-dev:amd64 (0.4-1build2) ...
Selecting previously unselected package libsm-dev:amd64.

Preparing to unpack .../07-libsm-dev_2%3a1.2.3-1build2_amd64.deb ...
Unpacking libsm-dev:amd64 (2:1.2.3-1build2) ...
Selecting previously unselected package libxau-dev:amd64.
Preparing to unpack .../08-libxau-dev_1%3a1.0.9-1build5_amd64.deb ...
Unpacking libxau-dev:amd64 (1:1.0.9-1build5) ...
Selecting previously unselected package libxdmcp-dev:amd64.
Preparing to unpack .../09-libxdmcp-dev_1%3a1.1.3-0ubuntu5_amd64.deb ...
Unpacking libxdmcp-dev:amd64 (1:1.1.3-0ubuntu5) ...
Selecting previously unselected package xtrans-dev.
Preparing to unpack .../10-xtrans-dev_1.4.0-1_all.deb ...
Unpacking xtrans-dev (1.4.0-1) ...
Selecting previously unselected package libxcb1-dev:amd64.
Preparing to unpack .../11-libxcb1-dev_1.14-3ubuntu3_amd64.deb ...
Unpacking libxcb1-dev:amd64 (1.14-3ubuntu3) ...
Selecting previously unselected package libx11-dev:amd64.
Preparing to unpack .../12-libx11-dev_2%3a1.7.5-1ubuntu0.3_amd64.deb ...
Unpacking libx11-dev:amd64 (2:1.7.5-1ubuntu0.3) ...
Selecting previously unselected package libxt-dev:amd64.
Preparing to unpack .../13-libxt-dev_1%3a1.2.1-1_amd64.deb ...
Unpacking libxt-dev:amd64 (1:1.2.1-1) ...
Selecting previously unselected package openjdk-11-jre:amd64.
Preparing to unpack .../14-openjdk-11-jre_11.0.24+8-1ubuntu3~22.04_amd64.deb ...
Unpacking openjdk-11-jre:amd64 (11.0.24+8-1ubuntu3~22.04) ...
Selecting previously unselected package openjdk-11-jdk:amd64.
Preparing to unpack .../15-openjdk-11-jdk_11.0.24+8-1ubuntu3~22.04_amd64.deb ...
Unpacking openjdk-11-jdk:amd64 (11.0.24+8-1ubuntu3~22.04) ...
Setting up openjdk-11-jre:amd64 (11.0.24+8-1ubuntu3~22.04) ...
Setting up libpthread-stubs0-dev:amd64 (0.4-1build2) ...
Setting up xtrans-dev (1.4.0-1) ...
Setting up fonts-dejavu-extra (2.37-2build1) ...
Setting up openjdk-11-jdk:amd64 (11.0.24+8-1ubuntu3~22.04) ... update-alternatives: using
/usr/lib/jvm/java-11-openjdk-amd64/bin/jconsole to provide
/usr/bin/jconsole (jconsole) in auto mode Setting
up xorg-sgml-doctools (1:1.11-1.1) ...
Setting up libatk-wrapper-java (0.38.0-5build1) ...
Setting up libatk-wrapper-java-jni:amd64 (0.38.0-5build1) ...
Processing triggers for sgml-base (1.30) ...
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...
Setting up x11proto-dev (2021.5-1) ...
Processing triggers for fontconfig (2.13.1-4.2ubuntu5) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...
Setting up libxau-dev:amd64 (1:1.0.9-1build5) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Setting up libice-dev:amd64 (2:1.0.10-1build2) ...

Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Setting up libsm-dev:amd64 (2:1.2.3-1build2) ...
Processing triggers for man-db (2.10.2-1) ...
Setting up libxdmcp-dev:amd64 (1:1.1.3-0ubuntu5) ...
Setting up libxcb1-dev:amd64 (1.14-3ubuntu3) ...
Setting up libx11-dev:amd64 (2:1.7.5-1ubuntu0.3) ...
Setting up libxt-dev:amd64 (1:1.2.1-1) ...

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ sudo apt install python3 python3-pip

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following packages were automatically installed and are no longer required:

python3-cliapp python3-markdown python3-pygments python3-ttystatus Use 'sudo apt autoremove' to remove them. The following additional packages will be installed: binutils binutils-common binutils-x86-64-linux-gnu build-essential dpkg-dev fakeroot g++ g++-11 gcc gcc-11 libalgorithm-diff-perl

libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libbinutils libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0

libctf0 libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-11-dev libitm1 libjsjquery libjs-sphinxdoc libjs-underscore liblsan0

libnsl-dev libpython3-dev libpython3-stdlib libpython3.10-dev libquadmath0 libstdc++-11-dev libtirpc-dev libtsan0 libubsan1 linux-libc-dev

lto-disabled-list make manpages-dev python3-dev python3-distutils python3-minimal python3-setuptools python3-wheel python3.10-dev rpcsvc-proto zlib1g-dev

Suggested packages: binutils-doc debian-keyring g++-multilib g++-11-multilib gcc-11-doc gcc-multilib autoconf automake libtool flex bison gcc-doc gcc-11-multilib

gcc-11-locales glibc-doc git bzr libstdc++-11-doc make-doc python3-doc python3-tk python3venv python-setuptools-doc

The following NEW packages will be installed: binutils binutils-common binutils-x86-64-linux-gnu build-essential dpkg-dev fakeroot g++ g++-11 gcc gcc-11 libalgorithm-diff-perl

libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libbinutils libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0

libctf0 libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-11-dev libitm1 libjsjquery libjs-sphinxdoc libjs-underscore liblsan0

libnsl-dev libpython3-dev libpython3.10-dev libquadmath0 libstdc++-11-dev libtirpc-dev libtsan0 libubsan1 linux-libc-dev lto-disabled-list make

manpages-dev python3-dev python3-distutils python3-pip python3-setuptools python3-wheel python3.10-dev rpcsvc-proto zlib1g-dev The following packages will be upgraded: libpython3-stdlib python3 python3-minimal

3 upgraded, 52 newly installed, 0 to remove and 246 not upgraded.

Need to get 62.3 MB of archives.

After this operation, 221 MB of additional disk space will be used.

Do you want to continue? [Y/n] y

Get:1 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 python3-minimal amd64 3.10.6-1~22.04.1> [24.3 kB]

Get:2 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 python3 amd64 3.10.6-1~22.04.1> [22.8 kB]

Get:3 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libpython3-stdlib amd64 3.10.6-1~22.04.1> [6,812 B]

Get:4 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 binutils-common amd64 2.38-4ubuntu2.6> [222 kB]

Get:5 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libbinutils amd64 2.38-4ubuntu2.6> [662 kB]

Get:6 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libctf-nobfd0 amd64 2.38-4ubuntu2.6> [108 kB]

Get:7 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libctf0 amd64 2.38-4ubuntu2.6> [103 kB]

Get:8 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 binutils-x86-64linux-gnu amd64 2.38-4ubuntu2.6> [2,326 kB]

Get:9 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 binutils amd64 2.38-4ubuntu2.6> [3,200 B]

Get:10 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libc-dev-bin amd64 2.35-0ubuntu3.8> [20.3 kB]

Get:11 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 linux-libc-dev amd64 5.15.0-122.132> [1,322 kB]

Get:12 <http://in.archive.ubuntu.com/ubuntu/jammy/main amd64 libcrypt-dev amd64 1:4.4.27-1> [112 kB]

Get:13 <http://in.archive.ubuntu.com/ubuntu/jammy/main amd64 rpcsvc-proto amd64 1.4.2-0ubuntu6> [68.5 kB]

Get:14 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libtirpc-dev amd64 1.3.2-2ubuntu0.1> [192 kB]

Get:15 <http://in.archive.ubuntu.com/ubuntu/jammy/main amd64 libnsl-dev amd64 1.3.0-2build2> [71.3 kB]

Get:16 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libc6-dev amd64 2.35-0ubuntu3.8> [2,100 kB]

Get:17 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libcc1-0 amd64 12.3.0-1ubuntu1~22.04> [48.3 kB]

Get:18 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libitm1 amd64 12.3.0-1ubuntu1~22.04> [30.2 kB]

Get:19 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libasan6 amd64 11.4.0-1ubuntu1~22.04> [2,282 kB]

Get:20 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 liblsan0 amd64 12.3.0-1ubuntu1~22.04> [1,069 kB]

Get:21 <http://in.archive.ubuntu.com/ubuntu/jammy-updates/main amd64 libtsan0 amd64>

11.4.0-1ubuntu1~22.04 [2,260 kB]
 Get:22 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libubsan1 amd64
 12.3.0-1ubuntu1~22.04 [976 kB]
 Get:23 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libquadmath0 amd64
 12.3.0-1ubuntu1~22.04 [154 kB]
 Get:24 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgcc-11-dev amd64
 11.4.0-1ubuntu1~22.04 [2,517 kB]
 Get:25 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gcc-11 amd64
 11.4.0-1ubuntu1~22.04 [20.1 MB]
 36% [25 gcc-11 4,694 kB/20.1 MB 23%]
 11.6 kB/s 58Get:26 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 gcc amd64
 4:11.2.0-1ubuntu1 [5,112 B]
 Get:27 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libstdc++-11-dev
 amd64 11.4.0-1ubuntu1~22.04 [2,101 kB]
 Get:28 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 g++-11 amd64
 11.4.0-1ubuntu1~22.04 [11.4 MB]
 Get:29 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 g++ amd64 4:11.2.0-
 1ubuntu1 [1,412 B]
 Get:30 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 make amd64 4.3-4.1build1
 [180 kB]
 Get:31 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libdpkg-perl all
 1.21.1ubuntu2.3 [237 kB]
 Get:32 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 lto-disabled-list all 24 [12.5 kB]
 Get:33 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dpkg-dev all
 1.21.1ubuntu2.3 [922 kB]
 Get:34 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 build-essential amd64
 12.9ubuntu3 [4,744 B]
 Get:35 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libfakeroot amd64 1.28-
 1ubuntu1 [31.5 kB]
 Get:36 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 fakeroot amd64 1.28-
 1ubuntu1 [60.4 kB]
 Get:37 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libalgorithm-diff-perl all
 1.201-1 [41.8 kB]
 Get:38 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libalgorithm-diff-xs-perl amd64
 0.04-6build3 [11.9 kB]
 Get:39 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libalgorithm-merge-perl all
 0.08-3 [12.0 kB]
 Get:40 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-devtools amd64
 2.35-0ubuntu3.8 [28.9 kB]
 Get:41 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libexpat1-dev amd64
 2.4.7-1ubuntu0.4 [147 kB]
 Get:42 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libfile-fcntllock-perl amd64
 0.22-3build7 [33.9 kB]
 Get:43 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libjs-jquery all

3.6.0+dfsg+~3.5.13-1 [321 kB]
Get:44 <http://in.archive.ubuntu.com/ubuntu> jammy/main amd64 libjs-underscore all 1.13.2~dfsg-2 [118 kB]
Get:45 <http://in.archive.ubuntu.com/ubuntu> jammy/main amd64 libjs-sphinxdoc all 4.3.2-1 [139 kB]
Get:46 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 zlib1g-dev amd64 1:1.2.11.dfsg-2ubuntu9.2 [164 kB]
Get:47 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 libpython3.10-dev amd64 3.10.12-1~22.04.6 [4,764 kB]
Get:48 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 libpython3-dev amd64 3.10.6-1~22.04.1 [7,064 B]
Get:49 <http://in.archive.ubuntu.com/ubuntu> jammy/main amd64 manpages-dev all 5.10-1ubuntu1 [2,309 kB]
Get:50 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 python3.10-dev amd64 3.10.12-1~22.04.6 [508 kB]
Get:51 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 python3-distutils all 3.10.8-1~22.04 [139 kB]
Get:52 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 python3-dev amd64 3.10.6-1~22.04.1 [26.0 kB]
Get:53 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/main amd64 python3setuptools all 59.6.0-1.2ubuntu0.22.04.2 [340 kB]
Get:54 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/universe amd64 python3-wheel all 0.37.1-2ubuntu0.22.04.1 [32.0 kB]
Get:55 <http://in.archive.ubuntu.com/ubuntu> jammy-updates/universe amd64 python3-pip all 22.0.2+dfsg-1ubuntu0.4 [1,305 kB]
Fetched 62.3 MB in 12min 0s (86.5 kB/s)
Extracting templates from packages: 100%
(Reading database ... 205858 files and directories currently installed.) Preparing to unpack .../python3-minimal_3.10.6-1~22.04.1_amd64.deb ...
Unpacking python3-minimal (3.10.6-1~22.04.1) over (3.10.6-1~22.04) ...
Setting up python3-minimal (3.10.6-1~22.04.1) ...
(Reading database ... 205858 files and directories currently installed.)
Preparing to unpack .../00-python3_3.10.6-1~22.04.1_amd64.deb ... running python pre-rtupdate hooks for python3.10...
Unpacking python3 (3.10.6-1~22.04.1) over (3.10.6-1~22.04) ...
Preparing to unpack .../01-libpython3-stdlib_3.10.6-1~22.04.1_amd64.deb ...
Unpacking libpython3-stdlib:amd64 (3.10.6-1~22.04.1) over (3.10.6-1~22.04) ...
Selecting previously unselected package binutils-common:amd64.
Preparing to unpack .../02-binutils-common_2.38-4ubuntu2.6_amd64.deb ...
Unpacking binutils-common:amd64 (2.38-4ubuntu2.6) ...
Selecting previously unselected package libbinutils:amd64.
Preparing to unpack .../03-libbinutils_2.38-4ubuntu2.6_amd64.deb ...
Unpacking libbinutils:amd64 (2.38-4ubuntu2.6) ...
Selecting previously unselected package libctf-nobfd0:amd64.

Preparing to unpack .../04-libctf-nobfd0_2.38-4ubuntu2.6_amd64.deb ...
Unpacking libctf-nobfd0:amd64 (2.38-4ubuntu2.6) ...
Selecting previously unselected package libctf0:amd64.
Preparing to unpack .../05-libctf0_2.38-4ubuntu2.6_amd64.deb ...
Unpacking libctf0:amd64 (2.38-4ubuntu2.6) ...
Selecting previously unselected package binutils-x86-64-linux-gnu.
Preparing to unpack .../06-binutils-x86-64-linux-gnu_2.38-4ubuntu2.6_amd64.deb ...
Unpacking binutils-x86-64-linux-gnu (2.38-4ubuntu2.6) ...
Selecting previously unselected package binutils.
Preparing to unpack .../07-binutils_2.38-4ubuntu2.6_amd64.deb ...
Unpacking binutils (2.38-4ubuntu2.6) ...
Selecting previously unselected package libc-dev-bin.
Preparing to unpack .../08-libc-dev-bin_2.35-0ubuntu3.8_amd64.deb ...
Unpacking libc-dev-bin (2.35-0ubuntu3.8) ...
Selecting previously unselected package linux-libc-dev:amd64.
Preparing to unpack .../09-linux-libc-dev_5.15.0-122.132_amd64.deb ...
Unpacking linux-libc-dev:amd64 (5.15.0-122.132) ...
Selecting previously unselected package libcrypt-dev:amd64.
Preparing to unpack .../10-libcrypt-dev_1%3a4.4.27-1_amd64.deb ...
Unpacking libcrypt-dev:amd64 (1:4.4.27-1) ...
Selecting previously unselected package rpcsvc-proto.
Preparing to unpack .../11-rpcsvc-proto_1.4.2-0ubuntu6_amd64.deb ...
Unpacking rpcsvc-proto (1.4.2-0ubuntu6) ...
Selecting previously unselected package libtirpc-dev:amd64.
Preparing to unpack .../12-libtirpc-dev_1.3.2-2ubuntu0.1_amd64.deb ...
Unpacking libtirpc-dev:amd64 (1.3.2-2ubuntu0.1) ...
Selecting previously unselected package libnsl-dev:amd64.
Preparing to unpack .../13-libnsl-dev_1.3.0-2build2_amd64.deb ...
Unpacking libnsl-dev:amd64 (1.3.0-2build2) ...
Selecting previously unselected package libc6-dev:amd64.
Preparing to unpack .../14-libc6-dev_2.35-0ubuntu3.8_amd64.deb ...
Unpacking libc6-dev:amd64 (2.35-0ubuntu3.8) ...
Selecting previously unselected package libcc1-0:amd64.
Preparing to unpack .../15-libcc1-0_12.3.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libcc1-0:amd64 (12.3.0-1ubuntu1~22.04) ...
Selecting previously unselected package libitm1:amd64.
Preparing to unpack .../16-libitm1_12.3.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libitm1:amd64 (12.3.0-1ubuntu1~22.04) ...
Selecting previously unselected package libasan6:amd64.
Preparing to unpack .../17-libasan6_11.4.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libasan6:amd64 (11.4.0-1ubuntu1~22.04) ...
Selecting previously unselected package liblsan0:amd64.
Preparing to unpack .../18-liblsan0_12.3.0-1ubuntu1~22.04_amd64.deb ...
Unpacking liblsan0:amd64 (12.3.0-1ubuntu1~22.04) ...

Selecting previously unselected package libtsan0:amd64.
Preparing to unpack .../19-libtsan0_11.4.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libtsan0:amd64 (11.4.0-1ubuntu1~22.04) ...
Selecting previously unselected package libubsan1:amd64.
Preparing to unpack .../20-libubsan1_12.3.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libubsan1:amd64 (12.3.0-1ubuntu1~22.04) ...
Selecting previously unselected package libquadmath0:amd64.
Preparing to unpack .../21-libquadmath0_12.3.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libquadmath0:amd64 (12.3.0-1ubuntu1~22.04) ...
Selecting previously unselected package libgcc-11-dev:amd64.
Preparing to unpack .../22-libgcc-11-dev_11.4.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libgcc-11-dev:amd64 (11.4.0-1ubuntu1~22.04) ...
Selecting previously unselected package gcc-11.
Preparing to unpack .../23-gcc-11_11.4.0-1ubuntu1~22.04_amd64.deb ...
Unpacking gcc-11 (11.4.0-1ubuntu1~22.04) ...
Selecting previously unselected package gcc.
Preparing to unpack .../24-gcc_4%3a11.2.0-1ubuntu1_amd64.deb ...
Unpacking gcc (4:11.2.0-1ubuntu1) ...
Selecting previously unselected package libstdc++-11-dev:amd64.
Preparing to unpack .../25-libstdc++-11-dev_11.4.0-1ubuntu1~22.04_amd64.deb ...
Unpacking libstdc++-11-dev:amd64 (11.4.0-1ubuntu1~22.04) ...
Selecting previously unselected package g++-11.
Preparing to unpack .../26-g++-11_11.4.0-1ubuntu1~22.04_amd64.deb ...
Unpacking g++-11 (11.4.0-1ubuntu1~22.04) ...
Selecting previously unselected package g++.
Preparing to unpack .../27-g++_4%3a11.2.0-1ubuntu1_amd64.deb ...
Unpacking g++ (4:11.2.0-1ubuntu1) ...
Selecting previously unselected package make.
Preparing to unpack .../28-make_4.3-4.1build1_amd64.deb ...
Unpacking make (4.3-4.1build1) ...
Selecting previously unselected package libdpkg-perl.
Preparing to unpack .../29-libdpkg-perl_1.21.1ubuntu2.3_all.deb ...
Unpacking libdpkg-perl (1.21.1ubuntu2.3) ...
Selecting previously unselected package lto-disabled-list.
Preparing to unpack .../30-lto-disabled-list_24_all.deb ...
Unpacking lto-disabled-list (24) ...
Selecting previously unselected package dpkg-dev.
Preparing to unpack .../31-dpkg-dev_1.21.1ubuntu2.3_all.deb ...
Unpacking dpkg-dev (1.21.1ubuntu2.3) ...
Selecting previously unselected package build-essential.
Preparing to unpack .../32-build-essential_12.9ubuntu3_amd64.deb ...
Unpacking build-essential (12.9ubuntu3) ...
Selecting previously unselected package libfakeroot:amd64.
Preparing to unpack .../33-libfakeroot_1.28-1ubuntu1_amd64.deb ...

Unpacking libfakeroot:amd64 (1.28-1ubuntu1) ...
Selecting previously unselected package fakeroot.
Preparing to unpack .../34-fakeroot_1.28-1ubuntu1_amd64.deb ...
Unpacking fakeroot (1.28-1ubuntu1) ...
Selecting previously unselected package libalgorithm-diff-perl.
Preparing to unpack .../35-libalgorithm-diff-perl_1.201-1_all.deb ...
Unpacking libalgorithm-diff-perl (1.201-1) ...
Selecting previously unselected package libalgorithm-diff-xs-perl.
Preparing to unpack .../36-libalgorithm-diff-xs-perl_0.04-6build3_amd64.deb ...
Unpacking libalgorithm-diff-xs-perl (0.04-6build3) ...
Selecting previously unselected package libalgorithm-merge-perl.
Preparing to unpack .../37-libalgorithm-merge-perl_0.08-3_all.deb ...
Unpacking libalgorithm-merge-perl (0.08-3) ...
Selecting previously unselected package libc-devtools.
Preparing to unpack .../38-libc-devtools_2.35-0ubuntu3.8_amd64.deb ...
Unpacking libc-devtools (2.35-0ubuntu3.8) ...
Selecting previously unselected package libexpat1-dev:amd64.
Preparing to unpack .../39-libexpat1-dev_2.4.7-1ubuntu0.4_amd64.deb ...
Unpacking libexpat1-dev:amd64 (2.4.7-1ubuntu0.4) ...
Selecting previously unselected package libfile-fcntllock-perl.
Preparing to unpack .../40-libfile-fcntllock-perl_0.22-3build7_amd64.deb ...
Unpacking libfile-fcntllock-perl (0.22-3build7) ...
Selecting previously unselected package libjs-jquery.
Preparing to unpack .../41-libjs-jquery_3.6.0+dfsg+~3.5.13-1_all.deb ...
Unpacking libjs-jquery (3.6.0+dfsg+~3.5.13-1) ...
Selecting previously unselected package libjs-underscore.
Preparing to unpack .../42-libjs-underscore_1.13.2~dfsg-2_all.deb ...
Unpacking libjs-underscore (1.13.2~dfsg-2) ...
Selecting previously unselected package libjs-sphinxdoc.
Preparing to unpack .../43-libjs-sphinxdoc_4.3.2-1_all.deb ...
Unpacking libjs-sphinxdoc (4.3.2-1) ...
Selecting previously unselected package zlib1g-dev:amd64.
Preparing to unpack .../44-zlib1g-dev_1%3a1.2.11.dfsg-2ubuntu9.2_amd64.deb ...
Unpacking zlib1g-dev:amd64 (1:1.2.11.dfsg-2ubuntu9.2) ...
Selecting previously unselected package libpython3.10-dev:amd64.
Preparing to unpack .../45-libpython3.10-dev_3.10.12-1~22.04.6_amd64.deb ...
Unpacking libpython3.10-dev:amd64 (3.10.12-1~22.04.6) ...
Selecting previously unselected package libpython3-dev:amd64.
Preparing to unpack .../46-libpython3-dev_3.10.6-1~22.04.1_amd64.deb ...
Unpacking libpython3-dev:amd64 (3.10.6-1~22.04.1) ...
Selecting previously unselected package manpages-dev.
Preparing to unpack .../47-manpages-dev_5.10-1ubuntu1_all.deb ...
Unpacking manpages-dev (5.10-1ubuntu1) ...
Selecting previously unselected package python3.10-dev.

Preparing to unpack .../48-python3.10-dev_3.10.12-1~22.04.6_amd64.deb ...
Unpacking python3.10-dev (3.10.12-1~22.04.6) ...
Selecting previously unselected package python3-distutils.
Preparing to unpack .../49-python3-distutils_3.10.8-1~22.04_all.deb ...
Unpacking python3-distutils (3.10.8-1~22.04) ...
Selecting previously unselected package python3-dev.
Preparing to unpack .../50-python3-dev_3.10.6-1~22.04.1_amd64.deb ...
Unpacking python3-dev (3.10.6-1~22.04.1) ...
Selecting previously unselected package python3-setuptools.
Preparing to unpack .../51-python3-setuptools_59.6.0-1.2ubuntu0.22.04.2_all.deb ...
Unpacking python3-setuptools (59.6.0-1.2ubuntu0.22.04.2) ...
Selecting previously unselected package python3-wheel.
Preparing to unpack .../52-python3-wheel_0.37.1-2ubuntu0.22.04.1_all.deb ...
Unpacking python3-wheel (0.37.1-2ubuntu0.22.04.1) ...
Selecting previously unselected package python3-pip.
Preparing to unpack .../53-python3-pip_22.0.2+dfsg-1ubuntu0.4_all.deb ...
Unpacking python3-pip (22.0.2+dfsg-1ubuntu0.4) ...
Setting up manpages-dev (5.10-1ubuntu1) ...
Setting up lto-disabled-list (24) ...
Setting up libfile-fcntllock-perl (0.22-3build7) ...
Setting up libalgorithm-diff-perl (1.201-1) ...
Setting up binutils-common:amd64 (2.38-4ubuntu2.6) ...
Setting up linux-libc-dev:amd64 (5.15.0-122.132) ...
Setting up libctf-nobfd0:amd64 (2.38-4ubuntu2.6) ...
Setting up libfakeroot:amd64 (1.28-1ubuntu1) ...
Setting up libasan6:amd64 (11.4.0-1ubuntu1~22.04) ...
Setting up fakeroot (1.28-1ubuntu1) ... update-alternatives: using /usr/bin/fakeroot-sysv to
provide /usr/bin/fakeroot (fakeroot) in auto mode
Setting up libtirpc-dev:amd64 (1.3.2-2ubuntu0.1) ...
Setting up rpcsvc-proto (1.4.2-0ubuntu6) ...
Setting up make (4.3-4.1build1) ...
Setting up libquadmath0:amd64 (12.3.0-1ubuntu1~22.04) ...
Setting up libdpkg-perl (1.21.1ubuntu2.3) ...
Setting up libubsan1:amd64 (12.3.0-1ubuntu1~22.04) ...
Setting up libns1-dev:amd64 (1.3.0-2build2) ...
Setting up libcrypt-dev:amd64 (1:4.4.27-1) ...
Setting up libjs-jquery (3.6.0+dfsg+~3.5.13-1) ...
Setting up libbinutils:amd64 (2.38-4ubuntu2.6) ...
Setting up libc-dev-bin (2.35-0ubuntu3.8) ...
Setting up libalgorithm-diff-xs-perl (0.04-6build3) ...
Setting up libcc1-0:amd64 (12.3.0-1ubuntu1~22.04) ...
Setting up liblsan0:amd64 (12.3.0-1ubuntu1~22.04) ...
Setting up libitm1:amd64 (12.3.0-1ubuntu1~22.04) ...
Setting up libpython3-stdlib:amd64 (3.10.6-1~22.04.1) ...

```

Setting up libc-devtools (2.35-0ubuntu3.8) ...
Setting up libjs-underscore (1.13.2~dfsg-2) ...
Setting up libalgorithm-merge-perl (0.08-3) ...
Setting up libtsan0:amd64 (11.4.0-1ubuntu1~22.04) ...
Setting up libctf0:amd64 (2.38-4ubuntu2.6) ...
Setting up python3 (3.10.6-1~22.04.1) ...
running python rtupdate hooks for python3.10... running
python post-rtupdate hooks for python3.10...
Setting up libjs-sphinxdoc (4.3.2-1) ...
Setting up libgcc-11-dev:amd64 (11.4.0-1ubuntu1~22.04) ...
Setting up libc6-dev:amd64 (2.35-0ubuntu3.8) ...
Setting up binutils-x86-64-linux-gnu (2.38-4ubuntu2.6) ...
Setting up python3-distutils (3.10.8-1~22.04) ...
Setting up python3-setuptools (59.6.0-1.2ubuntu0.22.04.2) ...
Setting up binutils (2.38-4ubuntu2.6) ...
Setting up python3-wheel (0.37.1-2ubuntu0.22.04.1) ...
Setting up dpkg-dev (1.21.1ubuntu2.3) ...
Setting up libexpat1-dev:amd64 (2.4.7-1ubuntu0.4) ...
Setting up python3-pip (22.0.2+dfsg-1ubuntu0.4) ...
Setting up libstdc++-11-dev:amd64 (11.4.0-1ubuntu1~22.04) ...
Setting up zlib1g-dev:amd64 (1:1.2.11.dfsg-2ubuntu9.2) ...
Setting up gcc-11 (11.4.0-1ubuntu1~22.04) ...
Setting up g++-11 (11.4.0-1ubuntu1~22.04) ...
Setting up gcc (4:11.2.0-1ubuntu1) ...
Setting up libpython3.10-dev:amd64 (3.10.12-1~22.04.6) ...
Setting up python3.10-dev (3.10.12-1~22.04.6) ...
Setting up g++ (4:11.2.0-1ubuntu1) ... update-alternatives: using /usr/bin/g++ to
provide /usr/bin/c++ (c++) in auto mode Setting up build-essential (12.9ubuntu3) ...
Setting up libpython3-dev:amd64 (3.10.6-1~22.04.1) ...
Setting up python3-dev (3.10.6-1~22.04.1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.8) ...
hduser@bv-ThinkCentre-neo-50t-Gen-3:~$ pip install pyspark
Collecting pyspark
  Downloading pyspark-3.5.3.tar.gz (317.3 MB)

```

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— 44.9/317.3 MB 39.4 kB/s eta 1:55:1

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44.9/317.3 MB 39.4 kB/s e

```

—— 317.3/317.3 MB 935.5 kB/s eta 0:00:00

Preparing metadata (setup.py) ... done

Collecting py4j==0.10.9.7

Downloading py4j-0.10.9.7-py2.py3-none-any.whl (200 kB)

—— 200.5/200.5 KB 1.6 MB/s eta 0:00:00

Building wheels for collected packages: pyspark

Building wheel for pyspark (setup.py) ... done

Created wheel for pyspark: filename=pyspark-3.5.3-py2.py3-none-any.whl size=317840648 sha256=de1ea2c16233ea657cc2036cdd291c19ed3202cdc90f93962e4d08ab91061157

Stored in directory:

/home/hduser/.cache/pip/wheels/1b/3a/92/28b93e2fbfdbb07509ca4d6f50c5e407f48dce4dd
bda69a4ab

Successfully built pyspark

Installing collected packages: py4j, pyspark

Successfully installed py4j-0.10.9.7 pyspark-3.5.3

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ touch pyspark_example.py

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ nano pyspark_example.py

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ ^[[200~python3

pyspark_example.py python3: command not found

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ ~python3 pyspark_example.py

Command '~python3' not found, did you mean: command

'python3' from deb python3 (3.10.6-1~22.04.1) command

'bpython3' from deb bpython (0.22.1-2) command

'ipython3' from deb ipython3 (7.31.1-1) Try: sudo apt install

<deb name>

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ python3 pyspark_example.py

24/09/30 12:06:10 WARN Utils: Your hostname, bv-ThinkCentre-neo-50t-Gen-3 resolves to a loopback address: 127.0.1.1; using 10.10.11.213 instead (on interface eno1)

24/09/30 12:06:10 WARN Utils: Set SPARK_LOCAL_IP if you need to bind to another address

Setting default log level to "WARN".

To adjust logging level use sc.setLogLevel(newLevel). For SparkR, use setLogLevel(newLevel).

24/09/30 12:06:10 WARN NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable

+-----+-----+

| Name| Id|

+-----+-----+

| Alice| 1|

| Bob| 2|

| Cathy| 3|

+-----+-----+

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hduser@bv-ThinkCentre-neo-50t-Gen-3:~$ touch mllib_example.py
hduser@bv-ThinkCentre-neo-50t-Gen-3:~$ nano mllib_example.py
hduser@bv-ThinkCentre-neo-50t-Gen-3:~$ python3
mllib_example.py Traceback (most recent call last):
  File "/home/hduser/mllib_example.py", line 2, in <module>
from pyspark.ml.classification import LogisticRegression
  File "/usr/local/lib/python3.10/dist-packages/pyspark/ml/__init__.py", line 22, in <module>
from pyspark.ml.base import (
  File "/usr/local/lib/python3.10/dist-packages/pyspark/ml/base.py", line 40, in <module> from
pyspark.ml.param import P
  File "/usr/local/lib/python3.10/dist-packages/pyspark/ml/param/__init__.py", line 32, in
<module>
    import numpy as np
ModuleNotFoundError: No module named 'numpy'
hduser@bv-ThinkCentre-neo-50t-Gen-3:~$
pip install numpy
Collecting numpy
  Downloading numpy-2.1.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (16.3 MB)
-----
----- 16.3/16.3 MB 4.5 MB/s eta 0:00:00
Installing collected packages: numpy Successfully
installed numpy-2.1.1
hduser@bv-ThinkCentre-neo-50t-Gen-3:~$ python3 mllib_example.py
24/09/30 12:16:00 WARN Utils: Your hostname, bv-ThinkCentre-neo-50t-Gen-3 resolves to a
loopback address: 127.0.1.1; using 10.10.11.213 instead (on interface eno1)
24/09/30 12:16:00 WARN Utils: Set SPARK_LOCAL_IP if you need to bind to another address
Setting default log level to "WARN".
To adjust logging level use sc.setLogLevel(newLevel). For SparkR, use setLogLevel(newLevel).
24/09/30 12:16:01 WARN NativeCodeLoader: Unable to load native-hadoop library for your
platform... using builtin-java classes where applicable
24/09/30 12:16:05 WARN Instrumentation: [7c67abb3] All labels are the same value and
fitIntercept=true, so the coefficients will be zeros. Training is not needed.
24/09/30 12:16:05 WARN InstanceBuilder: Failed to load
implementation from:dev.ludovic.netlib.blas.JNIBLAS Accuracy: 0.3333333333333333
hduser@bv-ThinkCentre-neo-50t-Gen-3:~$ pip install pandas
pip install scipy
Collecting pandas
  Downloading pandas-2.2.3-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (13.1 MB)
-----

```

—— 13.1/13.1 MB 5.7 MB/s eta 0:00:00

Requirement already satisfied: pytz>=2020.1 in /usr/lib/python3/dist-packages (from pandas) (2022.1)

Collecting python-dateutil>=2.8.2

Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)

—— 229.9/229.9 KB 2.4 MB/s eta 0:00:00

Collecting tzdata>=2022.7

Downloading tzdata-2024.2-py2.py3-none-any.whl (346 kB)

—— 346.6/346.6 KB 2.5 MB/s eta 0:00:00

Requirement already satisfied: numpy>=1.22.4 in /usr/local/lib/python3.10/dist-packages (from pandas) (2.1.1)

Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (from python-dateutil>=2.8.2->pandas) (1.16.0)

Installing collected packages: tzdata, python-dateutil, pandas

Attempting uninstall: python-dateutil

Found existing installation: python-dateutil 2.8.1

Not uninstalling python-dateutil at /usr/lib/python3/dist-packages, outside environment /usr

Can't uninstall 'python-dateutil'. No files were found to uninstall.

Successfully installed pandas-2.2.3 python-dateutil-2.9.0.post0 tzdata-2024.2 Collecting scipy

Downloading scipy-1.14.1-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (41.2 MB)

—— 41.2/41.2 MB 4.3 MB/s eta 0:00:00

Requirement already satisfied: numpy<2.3,>=1.23.5 in /usr/local/lib/python3.10/dist-packages (from scipy) (2.1.1)

Installing collected packages: scipy

Successfully installed scipy-1.14.1

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ touch mllib_example.py

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ nano mllib_example.py

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ y y: command not found

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ touch mllib_example.py

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ nano mllib_example.py

hduser@bv-ThinkCentre-neo-50t-Gen-3:~\$ python3

mllib_example.py

24/09/30 12:17:31 WARN Utils: Your hostname, bv-ThinkCentre-neo-50t-Gen-3 resolves to a loopback address: 127.0.1.1; using 10.10.11.213 instead (on interface eno1)

24/09/30 12:17:31 WARN Utils: Set SPARK_LOCAL_IP if you need to bind to another address
Setting default log level to "WARN".

To adjust logging level use sc.setLogLevel(newLevel). For SparkR, use setLogLevel(newLevel).

24/09/30 12:17:31 WARN NativeCodeLoader: Unable to load native-hadoop library for your
platform... using builtin-java classes where applicable

24/09/30 12:17:36 WARN InstanceBuilder: Failed to load
implementation from:dev.ludovic.netlib.blas.JNIBLAS

Accuracy: 1.0