

استفاده از ویدیوی آموزشی که در سایت قرار داده شده بود نصب به طور کامل و بدون مشکل انجام شد.

در زیر تصاویری از اطلاعات سیستم و ورزش برنامه ها و راه اندازیشان آمده است.

اطلاعات کلی سیستم و اوبونتو:

```
erfan_wsl@ERFAN:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 22.04.1 LTS
Release:        22.04
Codename:       jammy
erfan_wsl@ERFAN:~$ sudo lshw -short
H/W path      Device      Class      Description
=====
/0             system      Computer
/0/0           bus         Motherboard
/0/0/1         memory      12GiB System memory
/0/0/2         processor   Intel(R) Core(TM) i7-3612QM CPU @ 2.10GHz
/0/0/0         display     Microsoft Corporation
/0/0/3         system      PnP device PNP0b00
/0/0/4         scsi0       storage
/0/0/4/0.0.0   /dev/sda    volume     256GiB Virtual Disk
/0/0/4/0.0.1   /dev/sdb    volume     256GiB Virtual Disk
/0/1           eth0        network    Ethernet interface
```

اجرا شدن اسپارک:

```

erfan_ws1@ERFAN:~$ spark-shell
23/01/03 22:25:25 WARN Utils: Your hostname, ERFAN resolves to a loopback address: 127.0.1.1; using 192.168.235.238 instead (on interface eth0)
23/01/03 22:25:25 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).
23/01/03 22:25:43 WARN NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Spark context Web UI available at http://192.168.235.238:4040
Spark context available as 'sc' (master = local[*], app id = local-1672772145105).
Spark session available as 'spark'.
Welcome to

  ____
 /  __ \
/   /  \
/_____/

version 3.3.1

Using Scala version 2.12.15 (OpenJDK 64-Bit Server VM, Java 11.0.17)
Type in expressions to have them evaluated.
Type :help for more information.

scala>

```

ورژن java و python:

```
openjdk 11.0.17 2022-10-18
OpenJDK Runtime Environment (build 11.0.17+8-post-Ubuntu-1ubuntu222.04)
OpenJDK 64-Bit Server VM (build 11.0.17+8-post-Ubuntu-1ubuntu222.04, mixed mode, sharing)
erfan_wsl@ERFAN:~$ python3 -V
Python 3.10.6
```

اطلاعات مربوط به pyspark:

```
erfan_wsl@ERFAN:~$ pip show pyspark
Name: pyspark
Version: 3.3.1
Summary: Apache Spark Python API
Home-page: https://github.com/apache/spark/tree/master/python
Author: Spark Developers
Author-email: dev@spark.apache.org
License: http://www.apache.org/licenses/LICENSE-2.0
Location: /home/erfan_wsl/.local/lib/python3.10/site-packages
Requires: py4j
Required-by:
```

اجرا کردن و بستن Jupyter-notebook و باز و بسته کردن نوت بوک های تمرین:

```
erfan_wsl@ERFAN:~$ jupyter-notebook
[I 22:43:12.450 NotebookApp] Serving notebooks from local directory: /home/erfan_wsl
[I 22:43:12.450 NotebookApp] Jupyter Notebook 6.5.2 is running at:
[I 22:43:12.450 NotebookApp] http://localhost:8888/?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b
[I 22:43:12.451 NotebookApp] or http://127.0.0.1:8888/?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b
[I 22:43:12.451 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 22:43:12.455 NotebookApp]

To access the notebook, open this file in a browser:
file:///home/erfan_wsl/.local/share/jupyter/runtime/nbserver-489-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b
or http://127.0.0.1:8888/?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b (127.0.0.1) 1.170000ms
[I 22:43:21.497 NotebookApp] 302 GET /?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b (127.0.0.1) 1.170000ms
[W 22:43:31.824 NotebookApp] Notebook HW_2/HW2_q1.ipynb is not trusted
[I 22:43:34.611 NotebookApp] Kernel started: c3ab07da-971e-4714-8316-ea2cf51c851b, name: python3
[W 22:43:40.153 NotebookApp] Notebook HW_2/HW2_q2.ipynb is not trusted
[I 22:43:41.658 NotebookApp] Kernel started: f4562941-b1d7-4b31-b9d5-2c0c1971a6ea, name: python3
[W 22:43:47.685 NotebookApp] Notebook HW_1/HW1.ipynb is not trusted
[I 22:43:50.579 NotebookApp] Kernel started: 4e76204b-3429-45b4-9210-db02da3206c8, name: python3
[I 22:44:30.565 NotebookApp] Starting buffering for c3ab07da-971e-4714-8316-ea2cf51c851b:093bd70a53dc4702ba8b3b273dbdc27f
[I 22:44:30.574 NotebookApp] Kernel shutdown: c3ab07da-971e-4714-8316-ea2cf51c851b
[I 22:44:41.843 NotebookApp] Starting buffering for f4562941-b1d7-4b31-b9d5-2c0c1971a6ea:8292195c458e47c3bd15b49318465ae3
[I 22:44:41.851 NotebookApp] Kernel shutdown: f4562941-b1d7-4b31-b9d5-2c0c1971a6ea
[I 22:44:45.422 NotebookApp] Starting buffering for 4e76204b-3429-45b4-9210-db02da3206c8:03e6602d298b4cdc9a47c689109f85b8
[I 22:44:45.430 NotebookApp] Kernel shutdown: 4e76204b-3429-45b4-9210-db02da3206c8
^C[I 22:44:56.071 NotebookApp] interrupted
Serving notebooks from local directory: /home/erfan_wsl
0 active kernels
Jupyter Notebook 6.5.2 is running at:
http://localhost:8888/?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b
or http://127.0.0.1:8888/?token=7b62401b18c1c4169b5afc8d6198d7c1bddbb4c5aa3aa67b
Shutdown this notebook server (y/[n])? y
[C 22:44:57.861 NotebookApp] Shutdown confirmed
[I 22:44:57.861 NotebookApp] Shutting down 0 kernels
[I 22:44:57.862 NotebookApp] Shutting down 0 terminals
```