

# **LAB SHEET 02**

**Faculty of Computing**

**Software Engineering**

**SE6103 – Parallel and Distributed Systems**

Name:	Sasindu Fernando
Reg. No:	19APSE4274
Academic Period:	3 <sup>rd</sup> Year 2 <sup>nd</sup> Semester
Due Date:	01.12.2024

## Lab Sheet2

1.Command:

Output:

```
PS C:\Users\HP> docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
nginx	latest	3b25b682ea82	6 weeks ago	192MB
alpine	latest	91ef0af61f39	2 months ago	7.8MB
hello-world	latest	d2c94e258dcb	18 months ago	13.3kB
bde2020/hadoop-namenode	latest	b638307a2119	4 years ago	1.37GB
bde2020/hadoop-historyserver	latest	9d3d45ba75ae	4 years ago	1.37GB
bde2020/hadoop-datanode	latest	9e7b07fcba31	4 years ago	1.37GB

Start containers:

```
PS C:\Users\HP> docker run -d --name hadoop-namenode bde2020/hadoop-namenode
d6c54ebc9a48f6fd421b8cf1d1e0f1c9fb8ae6c547da9394dba69a54ffb93160
PS C:\Users\HP> docker run -d --name hadoop-datanode bde2020/hadoop-datanode
16cb27b41b06aac4f47227bcc3aa677852b54136420d4146c04c5d34877b91b2
PS C:\Users\HP> docker run -d --name hadoop-historyserver bde2020/hadoop-historyserver
15d247e5af8c297c8ae3e909d5209915548130abbf763f2cb7224a7c050e7d2c
```

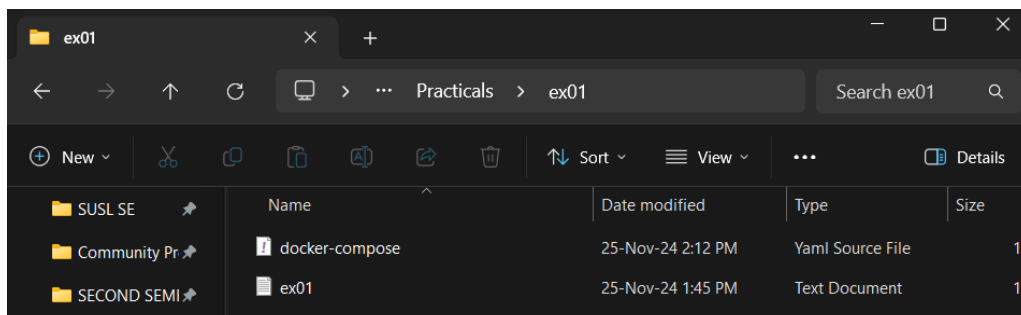
Confirmed running:

```
PS C:\Users\HP> docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
15d247e5af8c	bde2020/hadoop-historyserver	"/entrypoint.sh /run..."	47 seconds ago	Up 46 seconds (healthy)
16cb27b41b06	bde2020/hadoop-datanode	"/entrypoint.sh /run..."	55 seconds ago	Up 54 seconds (healthy)

2. Tasks

2.1. Created docker-compose.yaml and a text file



docker-compose.yml:

```
🐳 docker-compose.yml
1  services:
2    namenode:
3      image: bde2020/hadoop-namenode:latest
4      container_name: namenode
5      environment:
6        - CLUSTER_NAME=ShopSmartCluster
7        - CORE_CONF_fs_defaultFS=hdfs://namenode:8020
8      ports:
9        - "9870:9870"
10       - "9000:9000"
11     volumes:
12       - namenode-data:/hadoop/dfs/namenode
13
14     datanode:
15       image: bde2020/hadoop-datanode:latest
16       container_name: datanode
17       environment:
18         - CORE_CONF_fs_defaultFS=hdfs://namenode:8020
19       volumes:
20         - datanode-data:/hadoop/dfs/data
21       depends_on:
22         - namenode
23
24     historyserver:
25       image: bde2020/hadoop-historyserver:latest
26       container_name: historyserver
27       depends_on:
28         - namenode
29         - datanode
30       ports:
31         - "8188:8188"
32       environment:
33         - CORE_CONF_fs_defaultFS=hdfs://namenode:8020
34       volumes:
35         - namenode-data:/hadoop/dfs/namenode
36         - datanode-data:/hadoop/dfs/data
37
38     volumes:
39       namenode-data:
40       datanode-data:
41
```

### 3. Deployed the cluster and uploaded files:

```
PS E:\SUSL SE\THIRD YEAR\SECOND SEMESTER\Parallel and Distributed Systems\Practicals\ex01> docker exec  
it namenode hdfs dfs -ls /output1  
>>  
Found 2 items  
-rw-r--r--   3 root supergroup          0 2024-11-25 09:53 /output1/_SUCCESS  
-rw-r--r--   3 root supergroup    223 2024-11-25 09:53 /output1/part-r-00000
```

### 4. Analyzed and cleaned up:

```
PS E:\SUSL SE\THIRD YEAR\SECOND SEMESTER\Parallel and Distributed Systems\Practicals\ex01> docker-compo  
se down  
[+] Running 4/4  
✓ Container historyserver Removed 10.6s  
✓ Container datanode Removed 10.5s  
✓ Container namenode Removed 10.6s  
✓ Network ex01_default Removed 0.4s  
PS E:\SUSL SE\THIRD YEAR\SECOND SEMESTER\Parallel and Distributed Systems\Practicals\ex01>
```