PCS -II Assignment
Nitish Bhardwaj
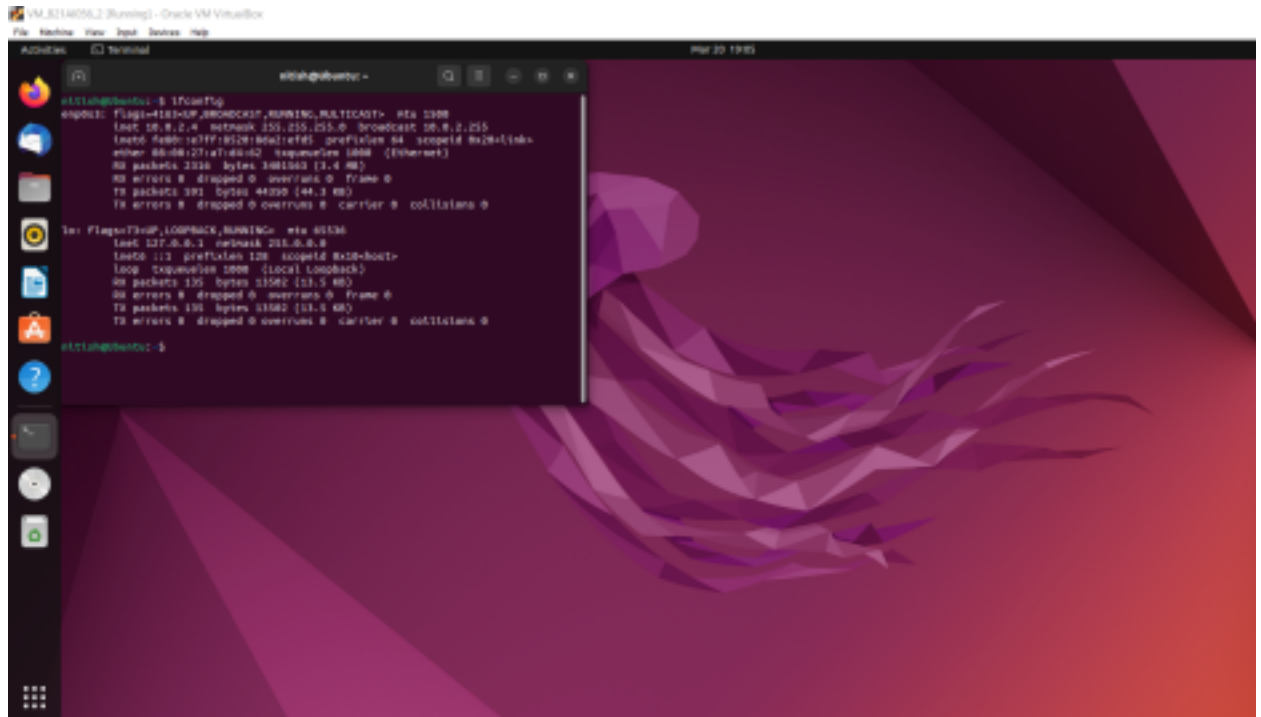# B21AI056

Virtual Machine Configuration and Application Deployment
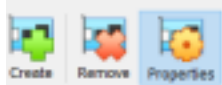
Youtube video :https://youtu.be/slKSgiOM1GE

We created 3 virtual machines and changed their ip addresses using NAT NETWORK which provides local ip addresses between 10.0.2.0 to 10.0.2.24 .

❖ The ip address of VM_B21AI056_1 : 10.0.2.5 , VM_B21AI056_2 : 10.0.2.4 and VM_B21AI056_3 : 10.0.2.6 .

❖ We added a port forwarding rule with host ip : 127.0.0.1 which is the ip of the pc ,host port : 8080,protocol : TCP ,guest port : 80 and the guest ip :10.0.2.5 which is the VM_B21AI056_1 ip address which is acting like a server for our purpose.

Host-only Networks   NAT Networks   Cloud Networks

Name	IPv4 Prefix	IPv6 Prefix	DHCP Server
NatNetwork	10.0.2.0/24	fd17:625c:f037:2::/64	Enabled

General Options   Port Forwarding

IPv4   IPv6

Name	Protocol	Host IP	Host Port	Guest IP	Guest Port	
Rule 2	TCP	127.0.0.1	8080	10.0.2.5	80	

VM_B21AI056_1 - Settings

Network

| Adapter 1 | Adapter 2 | Adapter 3 | Adapter 4 |

☐ Enable Network Adapter

Attached to: NAT Network ⌄

Name: NatNetwork ⌄

▼ Advanced

Adapter Type: Intel PRO/1000 MT Desktop (82540EM) ⌄

Promiscuous Mode: Deny ⌄

MAC Address: 080027BC5DE7

☑ Cable Connected

OK   Cancel   Help

Network

| Adapter 1 | Adapter 2 | Adapter 3 | Adapter 4 |

☐ Enable Network Adapter

Attached to: NAT Network ▼

Name: NatNetwork ▼

▼ Advanced

Adapter Type: Intel PRO/1000 MT Desktop (82540EM) ▼

Promiscuous Mode: Deny ▼

MAC Address: 080027A7D462

☑ Cable Connected

VM_B21AI056_2 - Settings

General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface

OK   Cancel   Help

VM_B21AI056_3 - Settings

Network

| Adapter 1 | Adapter 2 | Adapter 3 | Adapter 4 |

☑ Enable Network Adapter

Attached to: NAT Network

Name: NatNetwork

▼ Advanced

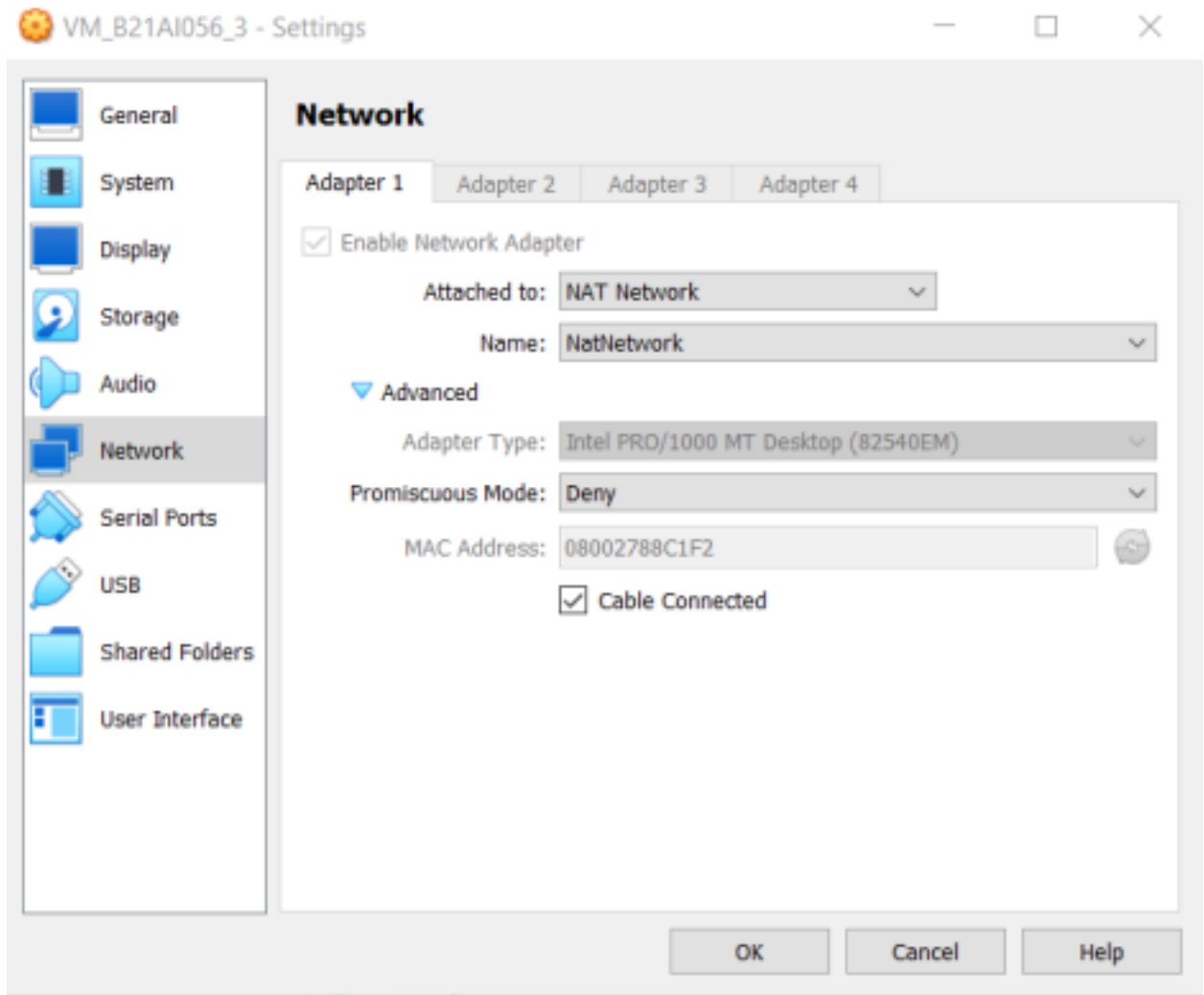Adapter Type: Intel PRO/1000 MT Desktop (82540EM)

Promiscuous Mode: Deny

MAC Address: 08002788C1F2

☑ Cable Connected

OK   Cancel   Help

❖ We accessed the web application from VM_B21AI056_3 by writing
http://10.0.2.5/crud.html in the search bar of the web browser.

❖ We accessed the web application from the host application by writing
http://localhost:8080/crud.html in the search bar of the web browser.

❖ We showed the mysql database and how we entered data through a web application and it got updated in the mysql database.

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| nitishdb           |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.13 sec)

mysql> use nitishdb;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+--------------------+
| Tables_in_nitishdb |
+--------------------+
| contacts           |
+--------------------+
1 row in set (0.00 sec)

mysql> describe contacts;
+-------+--------------+------+-----+---------+-------+
| Field | Type         | Null | Key | Default | Extra |
+-------+--------------+------+-----+---------+-------+
| Name  | varchar(255) | NO   |     | NULL    |       |
| Email | varchar(255) | NO   | PRI | NULL    |       |
| Phone | varchar(255) | NO   |     | NULL    |       |
+-------+--------------+------+-----+---------+-------+
3 rows in set (0.04 sec)

mysql> select * from contacts;
Empty set (0.00 sec)

mysql> select * from contacts;
+-----------------+----------------------+------------+
| Name            | Email                | Phone      |
+-----------------+----------------------+------------+
| Nitish Bhardwaj | bhardwaj.11@iitj.ac.in | 8287040699 |
+-----------------+----------------------+------------+
1 row in set (0.00 sec)
```

OVERALL SUMMARY:
VM_B21AI056_1 acts like a server upon which a web application is hosted which can be accessed both by VM_B21AI056_3 and host application and operations performed on web application acts on the data stored in mysql database.
Here we have created a crud.html file through which we can add,delete, update or reset data in the database through a file named process.php that will make connection between web application and database.

Database name : nitishdb
Table created : contacts
Fields : Name, Email and Phone.
Email is set as the primary key so that no two people with the same email get

added. **Here is the code written in crud.html and process.php file**

crud.html file code content:

```html
<!DOCTYPE html>
<html>
<head>
    <title>CRUD Operations</title>
</head>
<body>
    <h1>CRUD Operations</h1>
    <form method="post" action="process.php">
        <label for="name">Name:</label>
        <input type="text" name="name" required><br><br>
        <label for="email">Email:</label>
        <input type="email" name="email" required><br><br>
        <label for="phone">Phone:</label>
        <input type="text" name="phone" required><br><br>
        <input type="hidden" name="id" value="">
        <button type="submit" name="add">Add</button>
        <button type="submit" name="update">Update</button>
        <button type="submit" name="delete">Delete</button>
        <button type="reset">Reset</button>
    </form>
</body>
</html>
```

process.php file code content:

```php
<?php
// Connect to database
$conn = mysqli_connect('10.0.2.4', 'newuser', 'Sangita@11', 'nitishdb');

// Check connection
if (!$conn) {
        die('Connection failed: ' . mysqli_connect_error());
}

// Handle form submission
if (isset($_POST['add'])) {
        // Add new record
        $name = $_POST['name'];
        $email = $_POST['email'];
        $phone = $_POST['phone'];
        $sql = "INSERT INTO contacts (name, email, phone) VALUES ('$name', '$email',
```

```php
        '$phone')";
        mysqli_query($conn, $sql);
} elseif (isset($_POST['update'])) {
        // Update existing record
        $id = $_POST['id'];
        $name = $_POST['name'];
        $email = $_POST['email'];
        $phone = $_POST['phone'];
        $sql = "UPDATE contacts SET name='$name', email='$email', phone='$phone' WHERE
id=$id";
        mysqli_query($conn, $sql);
} elseif (isset($_POST['delete'])) {
        // Delete existing record
        $id = $_POST['id'];
        $sql = "DELETE FROM contacts WHERE id=$id";
        mysqli_query($conn, $sql);
}

// Close connection
mysqli_close($conn);
?>
```