1) Write a script to back up the directory /home/user/data into a folder named /backup with a timestamped subdirectory. Ensure your script displays a message upon successful completion of the backup.

Step 1

```
sudo mkdir -p /home/user/data
sudo mkdir -p /backup
sudo chown ec2-user:ec2-user /home/user/data /backup
```

Step 2

```
echo "Sample file 1" > /home/user/data/file1.txt
echo "Sample file 2" > /home/user/data/file2.txt
```

Step 3

nano backup.sh

```
#!/bin/bash

SOURCE="/home/user/data"
DESTINATION="/backup/backup_$timestamp"


mkdir -p "$DESTINATION/$(date)"
cp -r "$SOURCE" "$DESTINATION/$(date)" && echo "Backup completed on $(date)" || echo "Backup failed on $(date)"
```

Write a script to check the status of the Jenkins.service service and start it if it is not running. Display appropriate messages based on the service's state.

```
#!/bin/bash

SERVICE="sysstat.service"

if systemctl is-active --quiet "$SERVICE"; then
   echo "running"
else
   echo "not running"

fi
```

Write a script to check the reachability of a host named google.com and log the result into a file named ping_results.log.

```
#!/bin/bash

HOST="fsfsdfdsfsf.com"
OUTPUT_FILE="ping_results.log"


if ping -c 1 "$HOST" &> /dev/null; then
    echo "$(date): $HOST is reachable" >> "$OUTPUT_FILE"
else
    echo "$(date): $HOST is not reachable" >> "$OUTPUT_FILE"
fi
```

Write a script that stores the system uptime in a file named system_uptime.log and appends a timestamp to each entry.

```
#!/bin/bash

OUTPUT_FILE="system_uptime.log"

echo "$(date): $(uptime -p)" >> "$OUTPUT_FILE"
```

Write a command to display the top 10 processes consuming the most memory on a system.

```
#!/bin/bash

echo "$(ps aux --sort=-%mem | head -n 11)" >> "memory_usage.log"
```

Write a command or script to display all TCP and UDP listening ports on a system, including their associated processes.

```
#!/bin/bash

netstat -tuln | grep LISTEN
```