```
########################################
# 1. Get IP addresses of each VM
########################################
ip a      # shows all IPs, note the one like 192.168.111.xxx


########################################
# 2. Map hostnames in /etc/hosts (do this on ALL 3 VMs)
########################################
sudo nano /etc/hosts
# Add these lines:
# 192.168.111.131 fy1
# 192.168.111.132 fy2
# 192.168.111.133 fy3
ping -c 2 fy2          # test that fy2 resolves from fy1


########################################
# 3. Install web servers on fy2 & fy3
########################################
sudo apt update && sudo apt install apache2 -y
echo '<h1>This is fy2</h1>' | sudo tee /var/www/html/index.html   # run on fy2
echo '<h1>This is fy3</h1>' | sudo tee /var/www/html/index.html   # run on fy3
sudo systemctl restart apache2
curl http://fy2          # test from another VM
curl http://fy3


########################################
# 4. Install & configure HAProxy on fy1
########################################
sudo apt update && sudo apt install haproxy -y
sudo nano /etc/haproxy/haproxy.cfg
# Add this to the file:
# frontend http_front
#     bind *:80
#     default_backend http_back
#
# backend http_back
#     balance roundrobin
#     server fy2 fy2:80 check
#     server fy3 fy3:80 check
sudo systemctl restart haproxy
```

```
curl http://fy1          # refresh multiple times, should alternate fy2/fy3


##########################################
# 5. Enable passwordless SSH (from fy1 → fy2 & fy3)
##########################################
# On fy2 & fy3:
sudo apt install openssh-server -y

# On fy1:
ssh-keygen -t rsa -N '' -f ~/.ssh/id_rsa
ssh-copy-id fy2@fy2
ssh-copy-id fy3@fy3
ssh fy2@fy2 hostname     # test (no password prompt)
ssh fy3@fy3 hostname


##########################################
# 6. Schedule tasks with cron (on fy1)
##########################################
crontab -e
# Add lines:
# */1 * * * * ssh fy2@fy2 'echo "fy2 ran at $(date)" >> /tmp/cron.log'
# */1 * * * * ssh fy3@fy3 'echo "fy3 ran at $(date)" >> /tmp/cron.log'

# After 1–2 minutes, check logs on fy2/fy3:
ssh fy2@fy2 cat /tmp/cron.log
ssh fy3@fy3 cat /tmp/cron.log
```