Lab 2 Answer:

I am not giving Video because you'll get points if you still submit it. But make sure you follow everything correctly. ACL is not explained as a research question.

Steps:

1. Put two 2960 switches and one 2911 router. On each PC, make sure you connect 2 PCs. Two Switches must be connected to the router.
    a. Cables are copper straight-through
    b. Each Switch will belong to one VLAN(10: Finance and 20: HR respectively).
    c. Do not do this manually: The PCs on switch1 will have 192.168.10.x IP addresses, whereas the PCs on switch2 will have 192.168.20.x IP addresses.
    d. Set the IP configuration on each PC to DHCP (should be on static by default)
    e. I assume you connected the PCs to switches on Fa0/1-2 port and to routers on Fa0/3 ports
2. On both switches name the VLANs
    - `vlan 10`
    - `name finance`
    - `vlan 20`
    - `name HR`
3. On each switch indicate whichever the vlans will be accessed.
    a. e.g. Switch1
        - `interface range FastEthernet0/1-2`
        - `switchport mode access`
        - `switchport access vlan 10`
    b. Vlan 20 for switch2
4. Set “no shutdown”on both interfaces of router
    a. GigabitEthernet0/0 and GigabitEthernet0/1
    b. We assume here, Gig0/0 is connected to switch1 and Gig0/1 is connected to switch2
5. **This is important**: Set encapsulations and ip addresses on subinterfaces
    a. E.g. for Vlan 10
        - `interface GigabitEthernet0/0.10`
        - `encapsulation dot1Q 10`
        - `ip address 192.168.10.1 255.255.255.0`
        - `no shutdown`
        - `exit`
    b. Do the same for Vlan 20 on interface Gig0/1.20
6. Set the DHCP pool
    - `ip dhcp pool Finance`
    - `network 192.168.10.0 255.255.255.0`
    - `default-router 192.168.10.1`
    - `dns-server <DNS-IP-Address>(e.g. 8.8.8.8)`

    - `ip dhcp pool HR`
    - `network 192.168.20.0 255.255.255.0`

- default-router 192.168.20.1
- dns-server <DNS-IP-Address> (e.g. 8.8.8.8)

7. Switchport trunk on **both** switches
    - interface FastEthernet0/3
    - switchport mode trunk
    - switchport trunk allowed vlan 10
    - switchport trunk allowed vlan add 20
    - exit
8. You need to wait for few minutes as ip routing is settled

For checking if anything you missed:
on enabled mode of switch check

```
Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                                Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                                Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                                Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                                Fa0/24, Gig0/1, Gig0/2
10   Finance                          active    Fa0/1, Fa0/2
20   HR                               active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
Switch#


Switch#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/3       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/3       10,20

Port        Vlans allowed and active in management domain
Fa0/3       10,20

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/3       10,20
```

On router:

```
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.10.0/24 is directly connected, GigabitEthernet0/0.10
L       192.168.10.1/32 is directly connected, GigabitEthernet0/0.10
     192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, GigabitEthernet0/1.20
L       192.168.20.1/32 is directly connected, GigabitEthernet0/1.20

Router#
```

```
Router#show ip dhcp binding
IP address       Client-ID/              Lease expiration        Type
                 Hardware address
192.168.10.2     000A.F3E2.6E8A           --                     Automatic
192.168.10.3     000B.BEEA.D4CD           --                     Automatic
192.168.20.2     000D.BD50.D5AA           --                     Automatic
192.168.20.3     0050.0FE5.A960           --                     Automatic
Router#
```

```
Router#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  up                    up
GigabitEthernet0/0.10  192.168.10.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  up                    up
GigabitEthernet0/1.20  192.168.20.1    YES manual up                    up
GigabitEthernet0/2     unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router#
```

If you can’t see your set up this way, it means you made a mistake or two in one of the steps. You may try it from beginning.