Build and configure each router and hosts in the above network with the following configuration parameters. Your submission should include a copy of the executable file and a hard copy for the list of commands that are used to configure each of the routers (R1, R2, R3, R4, R5, and R6). All executable files must be loaded into D2L. The major network address is 207.168.12.0/28

**Part I: TESTING THE NETWORK WITH STATIC ROUTES** (40 POINTS)

**Router R1:**
- **Hostname:** R1
- **Enable secret:** username
- **Banner message:** User authorization is required to access router R1
- **Interface description for Net2:** Attached to Network 2 with 12 hosts
- Assign and compute the Network 2 subnet IP address and its hosts IP addresses
- Configure every interface on router R1 with the correct IP address
- Clear R1 counter
- Configure all of R1 interfaces to be fully functional
- Test R1 interfaces using the ping utility
- Configure router R1 by adding static routes

**Router R2:**
- **Hostname:** R2
- **Enable secret:** username
- **Banner message:** User authorization is required to access router R2
- Configure every interface on router R2 with the correct IP address
- Clear R2 counter
• Configure all of R2 interfaces to be fully functional
• Test R2 interfaces using the ping utility
• Configure router R2 by adding static routes

Router R3:

• **Hostname**: R3
• **Enable secret**: username
• **Banner message**: User authorization is required to access router R3
• **Interface description for Net1**: Attached to Network 1 with 10 hosts
• Assign and compute the Network 1 subnet IP address and its hosts IP addresses
• Configure every interface on router R3 with the correct IP address
• Clear R3 counter
• Configure all of R3 interfaces to be fully functional
• Test R3 interfaces using the ping utility
• Configure router R3 by adding static routes

Router R4:

• **Hostname**: R4
• **Enable secret**: username
• **Banner message**: User authorization is required to access router R4
• **Interface description for Net4**: Attached to Network 4 with 10 hosts
• Assign and compute the Network 4 subnet IP address and its hosts IP addresses
• Configure every interface on router R4 with the correct IP address
• Clear R4 counter
• Configure all of R4 interfaces to be fully functional
• Test R4 interfaces using the ping utility
• Configure router R4 by adding static routes

Router R5:

• **Hostname**: R5
• **Enable secret**: username
• **Banner message**: User authorization is required to access router R5
• **Interface description for Net3**: Attached to Network 3 with 8 hosts
• Assign and compute the Network 3 subnet IP address and its hosts IP addresses
• Configure every interface on router R5 with the correct IP address
• Clear R5 counter
• Configure all of R5 interfaces to be fully functional
• Test R5 interfaces using the ping utility
• Configure router R5 by adding static routes

Router R6:

• **Hostname**: R6
• **Enable secret**: username
• **Banner message**: User authorization is required to access router R6
• Configure every interface on router R6 with the correct IP address
• Clear R6 counter
• Configure all of R6 interfaces to be fully functional
• Test R6 interfaces using the ping utility
• Configure router R6 by adding static routes
Part II: TESTING THE NETWORK WITH DYNAMIC ROUTING PROTOCOLS (40 POINTS)

For each router in the network, configure its routing protocol to use:
- RIPv1
- RIPv2
- OSPF
- Enable the peer-to-peer authentication for all routers in the network.

PART III: PROJECT REPORT (30 POINTS)

Each team will submit one project report. The report will include the following list of items:
- Table of content (1 page)
- Introduction and Lab setup (1-2 pages): This section will introduce the reader to basic networking using the GNS3 simulator tool and lab setup
- Technical background (2-3 pages): This section will describe the Cisco IOS fundamental, a brief description on each dynamic routing protocol used during this project, and technical difficulties you encounter during the project design and development
- Network description (2-3 pages): This section will address how your network is segmented into multiple subnets. A detailed description that shows the list of IP addresses assigned to each interface and host on the network must be presented here.
- Router Configuration (3-6 pages): A full implementation for every router on the network must be included in this section.
- Testing and validation (3-4 pages): You will be using the following list of commands to test your network:
  - ping
  - show ip route
  - show ip protocol

After each test is performed, you will need to take snapshot of the run and include them under the testing and validation section.

PROJECT TEAMS

<table>
<thead>
<tr>
<th>TEAM NAMES</th>
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<tbody>
<tr>
<td>Beall Marcus, Brown Darryl</td>
</tr>
<tr>
<td>Dice Jordan, Patel Jaykishan</td>
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<tr>
<td>Holmes Jordan, Michael Johnson</td>
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<td>Lartey-young Derek, Grant Darrell</td>
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<td>Love Cory, Dickinson Trevor</td>
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<td>MacDonald Franklin, Towery David</td>
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<td>Thomas John, Thomas Tevin</td>
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<td>Patel Shyam, Patel Radhesh</td>
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<td>Finnell Steven, Frost Andrew, Peoples Romeo</td>
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