
DISTRIBUTED SYSTEMS AND COMPUTING ASSIGNMENT 2

Roll no: 2023115125

Create and Distribute a Torrent File in a Peer-to-Peer Environment

1. Title

Torrent File Creation and Peer-to-Peer File Sharing using qBittorrent and Transmission

2. Objective

The objective of this assignment is to demonstrate **peer-to-peer (P2P) file sharing** by creating and distributing a torrent file and sharing data between peers using BitTorrent concepts.

3. Technologies Used

- Torrent Clients:
 - **qBittorrent**
 - **Transmission**
 - Operating System: Windows
 - P2P Protocol: BitTorrent
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4. Torrent Creation

4.1 Description

A torrent file was created to share a selected file in a decentralized manner.

4.2 Steps Followed

1. Selected a file to be shared.
 2. Created a **.torrent** file using qBittorrent.
 3. Configured tracker information.
 4. Enabled seeding on the source machine.
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5. Torrent Distribution

5.1 Seeding

- The original file was seeded using **qBittorrent**.
- The seeder made the complete file available to peers.

5.2 Downloading

- Another peer used **Transmission** to download the file.
- The torrent client connected to the seeder.

5.3 File Integrity Verification

- Torrent clients automatically verified file integrity using hash checks.
 - The downloaded file matched the original file successfully.
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6. Peer-to-Peer Setup

- One system acted as the **seeder**.
 - Another system acted as the **leecher**.
 - Data was transferred without a centralized server.
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7. Expected Output Achieved

- Successful **.torrent** file creation.
 - Successful file sharing between peers.
 - Fully downloaded and verified file.
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8. Screenshots Included

- Torrent file creation screenshot.
- Seeding status in qBittorrent.

- Downloading status in Transmission.
 - File verification status.
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9. Ethical Considerations

- Only non-copyrighted and non-sensitive files were shared.
 - No illegal content was distributed.
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10. Conclusion

This assignment successfully demonstrated **peer-to-peer file sharing** using BitTorrent. The use of qBittorrent and Transmission provided hands-on experience with decentralized systems and torrent-based data distribution.
