



Cyprus
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Faculty of Engineering
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Bachelor's Thesis

**Design and Development of a Peer-To-Peer File Transfer
Application**

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Limassol, May 2022

CYPRUS UNIVERSITY OF TECHNOLOGY
FACULTY OF ENGINEERING AND TECHNOLOGY
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ENGINEERING AND INFORMATICS

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I would like to express my gratitude to my parents, brothers and sister for supporting me throughout my studies. I also want to thank all my friends for providing emotional support throughout my studies.

ABSTRACT

File sharing is the practice of providing access to digital data either that is images, text files, video or audio from one computer to another. This is usually done directly in local area networks by making the files visible to other computers on the network using the operating system and then transferring it, on the internet this is done by using an intermediate server, the user providing the file uploads it to the server and the user requesting the file downloads it from said server. An alternative decentralized model exists, in a peer-to-peer network a middle-man is not required for transmission, each peer is interconnected with other peers and exchange information directly.

This bachelor's thesis will focus on the design and implementation of an all-in-one software application that will enable the user to be able to take part in a peer-to-peer network and to be able to search, send or receive files. This thesis will attempt to break down all the necessary functions and components necessary for this to be made possible. We will see an overview of all the technologies used in the application that provide functionality such as frameworks, and data structures the application uses for local use or for networking, also we will see the background networking functions that make all the pre mentioned actions possible such as updating information about the networking , or providing information to other peers.

Keywords: file sharing, peer-to-peer, decentralized, blockchain, networking.