Exam 1

The Bitcoin explorer

Introduction:

People that are into blockchain technologies need a quick and easy access to the latest information in the blockchain explorers. The blockchain explorers are applications that provide information about the blocks, transactions and account balances. Your task is to create a blockchain explorer iOS application that displays basic blockchain information.

Requirements

Create a tab bar application with 2 tabs - Blocks and Accounts.

Blocks screen

The blocks screen consists of a table view showing all blocks that are available in the local database sorted by time showing the most recent block first. The cells in the table display 2 values - the block height and the block time. Fetch no more than 20 blocks before the current block.
Upon click on a cell the application should open **Block Details** screen.

Block details screen

Block details screen shows in a suitable for the user way the following information about the selected by the user block:

- Block hash
- Block height
- Block time
- Merkle root
- Number of transactions (txs)
- Nonce

Accounts screen

The accounts screen contains accounts that the user follows. The screen has a button on the top right to add a new account in the list and upon tap on that button the **Add Account** screen is opened. The screen consists of a table with cells displaying the account address and the current account balance. Upon tap of a cell **Account Details** screen is opened.

Add Account screen

Add account screen consists of a single text field used to input the Account Address and a Confirm button. When the address has been inputed by the user it should be verified by the API that it has transactions and if not an error message should be shown to the user. If the account has transactions the account should be stored in UserDefaults and the screen should be dismissed. Upon screen dismiss the **Account** screen information should be updated to contain the newly added account.

Account Details screen

The account details screen contains information about a selected by the user account presented in a suitable way. The information that should be presented on that screen is:

- Address
- Number of transactions to that address
- Total sent
- Total received
- Balance

Frameworks and tools

- API to be used - https://btc.explorer.changex.io/api/
- API Documentation - https://github.com/trezor/blockbook/blob/master/docs/api.md
- Framework for communication with the API - Alamofire
- Framework for local database - Realm

Evaluation criteria

1. Completeness of the implementation - 10 points
2. Swift skills (proper use of swift syntax) - 10 points
3. Work with frameworks (Alamofire, Realm) - 10 points
4. UI (Correct use of constraints) - 10 points
5. Project structure (correct use of MVP, how easy is to navigate the code) - 10 points

Notes:

- The last block is returned by calling https://btc.explorer.changex.io/api/
- In order to fetch the last 10 blocks data you need to have a loop that is going to execute 10 requests for getting the block and then visualise it
- You can use the following address for tests - bc1q54rqt77uh77ftgf5hahf2zf2sasyrwwxxgmkam
- Do not store data that is not needed in your database. Parsing some of the data that is not needed will take you too much time
- You can use the following URL for fetching account details - https://btc.explorer.changex.io/api/v2/address/bc1q54rqt77uh77ftgf5hahf2zf2sasyrwwxxgmkam
- The API has a rate limit of 50 requests per minute. Mind how often you fetch the data.