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Exercise Basic computer questions

No questions are allowed: if you have doubts on the theoretical questions fell free to add specifications on this paper and in this case your written answer will be part of the evaluation (positively or negatively). You have 10 minutes starting from now.

For each sentence, check either the TRUE or the FALSE box.

**TRUE  FALSE  You have written your name above on this paper IN A READABLE WAY**

**When you double-click on a program file**

TRUE  FALSE  the program file asks the operating system for an application to open it  
TRUE  FALSE  the operating system opens it with an appropriate app  
TRUE  FALSE  the program runs

TRUE  FALSE  the program is executed

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| --- |
| **WINDOWS users only**  **If you want to copy file abc.exe from directory DIR1 to directory DIR2**  TRUE  FALSE  you select abc.exe, right-click, choose Copy, then open DIR2, right-click, choose Paste  TRUE  FALSE  you select abc.exe, press CTRL+X, then open DIR2, press CTRL+V  TRUE  FALSE  you select abc.exe, press CTRL+X, then open DIR2, press CTRL+C  TRUE  FALSE  you drag abc.exe to directory DIR2 until you see an arrow  **When you double-click on a zip archive (Windows with 7-zip or izArc or Winzip)**  TRUE  FALSE  you see its content TRUE  FALSE  its content is extracted into a directory that is then shown to you TRUE  FALSE  your compression program displays the content of the archive  TRUE  FALSE  your operating system calls your compression program to open the archive |
| **Mac users only**  **If you want to copy file abc.exe from directory DIR1 to directory DIR2**  TRUE  FALSE  you select abc.exe, right-click, choose Copy “abc.exe”, then open DIR2, right-  click, choose Paste Item  TRUE  FALSE  you select abc.exe, press cmd+X, then open DIR2, press cmd+V  TRUE  FALSE  you select abc.exe, press cmd+X, then open DIR2, press cmd+C  TRUE  FALSE  you drag abc.exe to directory DIR2 paying attention that you do not see a +  **When you double-click on a zip archive (Mac with Keka)**  TRUE  FALSE  you see its content TRUE  FALSE  its content is extracted into a directory that is then shown to you TRUE  FALSE  your compression program displays the content of the archive  TRUE  FALSE  your operating system calls your compression program to open the archive |

**TURN PAGE 🡪**

**When you double-click on a link**

TRUE  FALSE  the original file opens (ether runs or is opened)  
TRUE  FALSE  the directory containing the original file is opened  
TRUE  FALSE  the address of the original file is displayed  
TRUE  FALSE  nothing happens

**If you have only READ permission on a Windows file**

TRUE  FALSE  you may look at it

TRUE  FALSE  you may open it

TRUE  FALSE  you may modify it

TRUE  FALSE  you may duplicate it

**Under optimal conditions, fibre optic connection is faster than**

TRUE  FALSE  ADSL   
TRUE  FALSE  UMTS  
TRUE  FALSE  LTE  
TRUE  FALSE  Wi-Fi

**When you encrypt data only for yourself**

TRUE  FALSE  public and private keys are the same   
TRUE  FALSE  you encrypt with your private key and give around your public key

TRUE  FALSE  you can do it seriously with a compression program

TRUE  FALSE  you can do it seriously with Microsoft Excel

**When you have to check a digital signature**

TRUE  FALSE  you use the signer’s private key   
TRUE  FALSE  you use the signer’s public key  
TRUE  FALSE  you use your private key  
TRUE  FALSE  you check that the encrypted document decrypts correctly

**This is a good way to remember passwords**

TRUE  FALSE  write them on a file on your computer

TRUE  FALSE  send them to yourself via email

TRUE  FALSE  use always the same passwords

TRUE  FALSE  use a password manager program

**An antivirus**

TRUE  FALSE  can scan a single file  
TRUE  FALSE  can scan an entire hard disk  
TRUE  FALSE  can scan an entire USB pendrive  
TRUE  FALSE  can be kept always running

**This is a good reason why you should backup**

TRUE  FALSE  your computer may be stolen  
TRUE  FALSE  you may erroneously delete your files

TRUE  FALSE  a virus may delete your files  
TRUE  FALSE  a program may erroneously delete your files

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Question 1 (worth 3 questions): List what is public and what is private/unknown on the Bitcoin blockchain.

Public things: addresses, transactions (amounts, involved addresses, time)

Unknown things: owners of addresses

Private things: private keys corresponding to addresses, obviously.

Question 2 (worth 3 questions): what are Bitcoin fees and what is their problem?

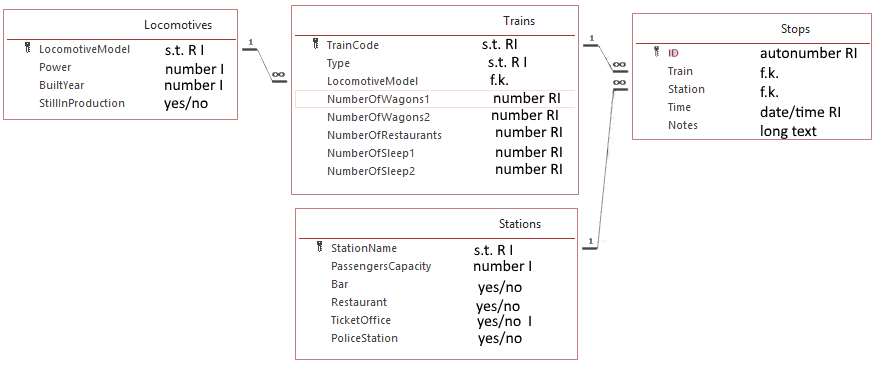
Bitcoin fees is a way for who start the transaction to reward the miner. Each transaction can include a fee for the miner. The larger the fee, the more the miner is incentivized to include that transaction in the next block. Since blocks have a limit of about 4000 transaction when there is a lot of traffic fees skyrocket to avoid having to wait too much for the confirmation.

Exercise Relational databases 27006 only

You have only 3 sheets of blank paper, do not ask for extra ones. You have 35 minutes starting from now.

3 tables, a junction table, 15 fields in the entire database. field names, Access field types, primary keys, relations with their “1” and “many” sides and the fields involved in the relations, required fields, indexed fields, at least two validation rules. two new queries: one that involves at least two tables and is not a summary query and another one that needs a summary query to be implemented.

**Trains’ timetable**: this database handles the timetables of train traffic. It must keep track of the trains and their stops at the stations. To simplify the database you can assume that the very same train runs every day on the same track. The database must be able to answer the question “Which trains stop in Bozen between 8:00 and 10:30?”.



NumberOfWagons1 is the number of 1st class wagons, NumberOfWagons2 is the number of 2nd class wagons, NumberOfSleep1 is the number of 1st class sleep wagons, NumberOfSleep2 is the number of 2nd class sleep wagons.

Please note that BuiltYear is number and not date!

Validations: NumberOfWagons1 > 1 (at least 2 wagons); Power is Null or Power > 0

Non-summary query with 2 tables: tell me all the trains which Restaurant which pass through Bolzano in the morning.

Summary query: how many locomotives do we own that were built in year 2015?