CSC 4608 - Blockchain & Applications

Semester 1 2020/2021

Project : Part 1, Group/team : 2 members

Value : 20% of the total mark of the subject.

Deadline : 05 Jan 2021

The first part of the Project requires your team to write, compile, deploy a smart contract which assumes the basic role of a cryptocurrency regulator (eg Bank Negara/Central Bank/Securities Commission). A regulator must be able to detect suspicious transactions and the suspects involved, as well as report them.

1. Refer to the use-case diagram given in Figure-1. There are sets of Actors (Depositors, Withdrawers & Bank-Negara).
2. The Bank-Negara (ie regulator) will perform the following regulatory functions:
    a. Set the Threshold value of fund transacted. Example of latest threshold value = 10 Ether.
    b. A valid account holder may transact (deposit/withdraw) any amount of fund into/from the smart contract.
    c. However, if the fund transacted is > the Threshold value set by Bank-Negara:
        i. An alert (ie message) must be raised to report such a huge transaction.
        ii. The alert must include address of the Account involved, and the amount involved.
    d. At any time, after any successful transaction, if the balance of fund in the smart contract is more than 50 Ether, the Bank-Negara must also be alerted via an appropriate message, that the smart contract may have been used as a place to launder cryptocurrency.
        i. The Bank-Negara must be alerted of ALL the Account Holders which have deposited fund into the smart-contract (in real life these are suspects for money launderers).
        ii. The Bank-Negara must be alerted of ALL the Account Holders which have withdrawn fund from the smart-contract (in real life these are also suspects for money launderers).
3. Using **solidity**, write the smart contract fulfilling all the requirements, compile and deploy it on the localhost blockchain, using ganache.
4. Use whatever tools you find necessary to deliver this Part-1 of the Project.
5. Execute your program to show the following cases:

a. A good-day behaviour, ie no irregularities eg no transaction beyond the threshold, and no suspicious money laundering
b. Cases of possible money laundering

6. Capture all the necessary screenshots to show your work has fulfilled all the requirements above.
7. Your group must indicate clearly which screenshots is meant for which task.
8. The Project Report to be submitted must include :
   a. Names of the group members (indicate who did which part in the intro of your report)
   b. All (software) components developed : via italeem OR via email (in case it is not possible via italeem, to [norbik@iium.edu.my]) OR via github/gitlab.
   c. If your project uses any specific tool not discussed in class, please include the tool as well, or at least the URL of the tools.
   d. Printed hardcopy of the full source codes. *(Note: Your Group must also email-attach the source code [norbik@iium.edu.my], for testing purposes)*.
   e. Screenshots showing fulfilment of all the requirements of the project.

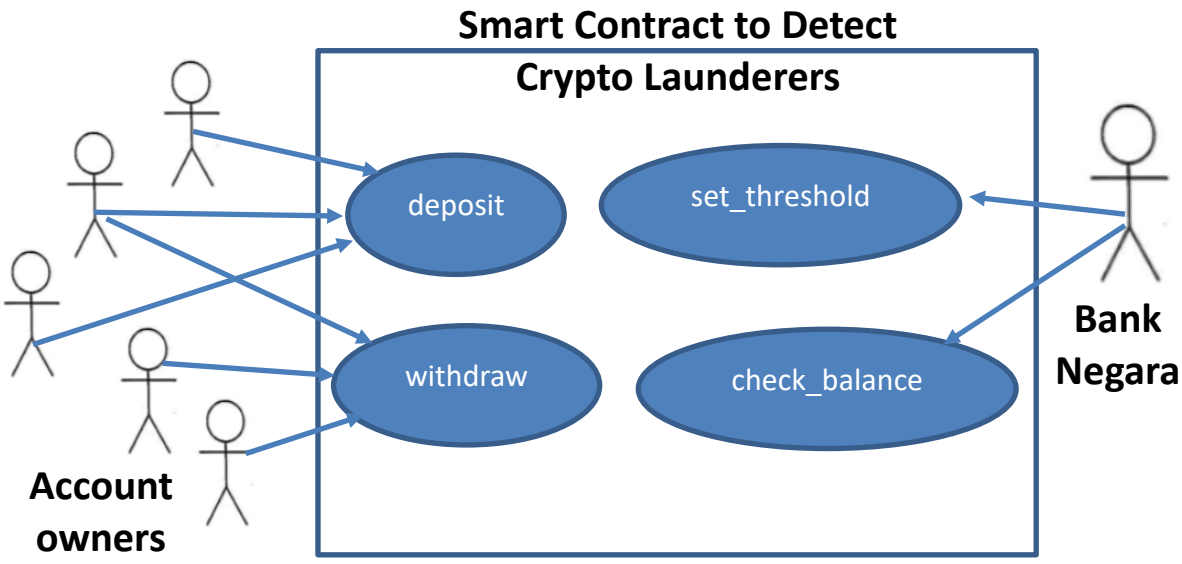

Figure -1 : Use-case Diagram (simplified)

---End of the specification for Part-1 of Project---