

Programming for IoT Applications

Exam Simulation

CODING QUESTION (max 4 points)

Develop an MQTT-based application named "WCFCounter" able to receive and store votes for the best player of the Football World Cup Final.

"WCFCounter" must be able to receive MQTT messages on the topic "WCF/2022/votes". Assume users can vote 2 players at a time by sending their preference via an MQTT message with the following JSON-based data-format:

```
{
  "players": ["Kylian Mbappe","Lionel Messi"]
}
```

When "WCFCounter" receives a vote like the one above it should increment the corresponding number of votes of the players contained in the message.

The current votes are stored in a local JSON file named "WCFvotes.json" similar to the following one:

```
{
  "playersList":[
    {
      "name": "Lionel Messi",
      "votes": 10
    },
    {
      "name": "Kylian Mbappe",
      "votes": 9
    },
    {
      "name": "Hugo Lloris",
      "votes": 1
    },
    {
      "name": "Angel Di Maria",
      "votes": 0
    }
    ...
  ]
}
```

Each time the scores are updated, the application should send an MQTT message to the topic "WCF/2022/mostVoted" with the most voted player and the percentage of votes obtained with the following JSON-based data-format:

```
{
  "player": "Lionel Messi",
  "percentage of votes": 50%
}
```

Use the paho MQTT library to develop the client. The solution must use Object-Oriented Programming