MSU Greenhouse Software Engineering Project (Backend)

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Message

+ body: string
+ user:User
- room:Room

- CreateMessage(body, user_id)
- UpdateMessage(message_id)
- DeleteMessage(message_id)
- GetRoomMessages(room_id)
- GetAllMessages()

Greenhouse

+ name:String
+ rooms:list<Room>
+ users:list<User>
+ servers:Server

- NameGreenhouse(name)
- AddRoom(name)
- AddServer(ip_address)

Room

- name: str
- experiments: list<Experiment>
- agent: Agent
- measurements: list<Measurement>
- messages: list<Message>

+ DownloadAgent(): Agent
- UpdateRoom(room_id)
- GetRooms()
- DeleteRoom(user_id)
- CreateRoom(name)
- GetMeasurements(start, end)
- AddMessage()
- DeleteAgent()

Experiments

+ alert_on:boolean = False
- start:datetime
- end:datetime
- upperBound: float
- lowerBound: float
- timeOutsideBounds: time
- timeBetweenAlerts: time
- users: list<User>

- SendAlert(emailList)
- CheckLatest(Measurement)
- GetMeasurements()
- AddUserToExperiment(user_id)
- UpdateExperiment(exp_id)
- DeleteExperiment(exp_id)
- CreateExperiment(exp_data)

User

+ isAdmin:boolean = False
- userID: JWT
- firstName: str
- lastName: str
- email: str
- username: str
- password: hash(str)
- messages: list<Message>
- experiments: list<Experiment>

- AddUser(first, last, email, username, password, isAdmin)
- EditUser(userID)
- DeleteUser(userID, freshJWT)
- AuthenticateUser(username, password)
- LogoutUser(user_id)

Server

- IP: ipv4
- name: str
- agents: Agent

+ GenerateAPIKEY(): APIKEY
- CheckInWithAgent(roomName)
- RelayMeasurement(agent_data)

Agent

- roomName: str
- duration: time
- key: APIKEY
- IP: ipv4
- serverIP: ipv4

- GetMeasurement()
- PostMeasurement(serverIP, public, private)
- Wait(duration)
- SetTimeDuration(newDuration)
- GetChanges()

Measurement

- temperature: float
- humidity: float
- brightness: float
- pressure: float
- timestamp: datetime
- room_id: Room.id