

# **CS-319**

# **Deliverable 5**

# **Team 06**

# **Group Members**

Muhammad Rowaha - 22101023

Maher Athar Ilyas - 22001298

**Mehshid Atiq - 22101335** 

**Ghulam Ahmed - 22101001** 

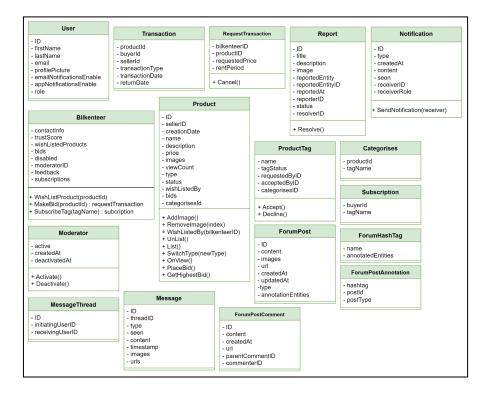
Ismail Özgenç - 22001648

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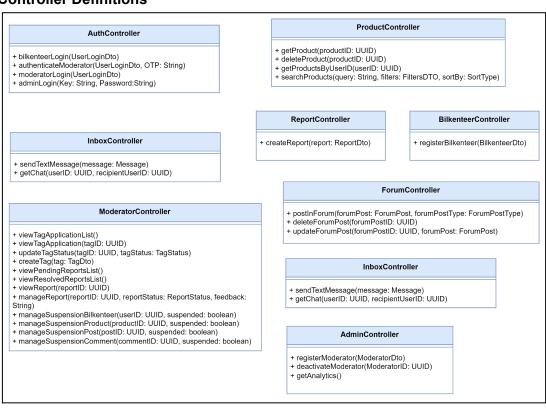
# 1. Class Diagram

# 1.1 Class Definitions

Will be replaced with entities. E.g. UserEntity, ReportEntity, etc



### 1.2 Controller Definitions



### 1.3 Service Manager Definitions

#### **ForumsService**

- commentsService
- + loadForumsByType(type) : forumPostDTO
- + addForumPost(forumPost, type, posterID)
- + addComment(comment, parentComment, postID, posterID): notification
- + annotatePost(hastag, postID)
- + getPostsByHashtag(hashtag)
- createHashtag(value) : hashtag
- hashtagExists(value) : exists

### MarketService

#### productBuilder

- + getAllProducts()
- + addNewProduct(forBilkenteer) :
- . + categorizeProduct(product, tag) : categorises
- + filterProductsByTag(tags) : products
- + filterProductsBySearch(search) :
- + sortProductsByTrust() : products
- + sortProductByDate() : products
- + hideProduct()
- + showProduct()
- + notifySubscribers(productTag) : notification
- + requestTag(tagName) : tag
- + acceptTag(tagName)
- + rejectTag(tagName)

#### **ProfileService**

- + loadWishtlists(bilkenteer) : products
- + viewSubscriptions(bilkenteer): subcriptions
- + getCompletedTransactions(bilkenteer)
- : transactions
- + getOngoingTransactions(bilkenteer) : transactions
- + getBids(bilkenteer) : requestTransactions
- +getNotifications(bilkenteer): notifications
- + updateProfile(profileStruct)

### InboxService

- + createNewThread(initiator, receiver)
- : messageThread
- + sendMessage(to, from, thread, message): notification
- + receiveMessage(to, from, thread): receiveMessageStruct
- + deleteMessage(message)
- + deleteThread(messageThread)

#### **AuthService**

- otpStrategy
- + loginBilkenteer()
- + registerBilkenteer(): bilkenteer
- + loginModerator()
- + authenticateRequest()

#### **TransactionService**

- + cancelBid(buyer, product)
- + makeBid(buyer, product, bidPrice, bidPeriod): requestTransaction
- + notifyBid(seller, product) : notification
- + sellProduct(buyer, seller, product) : transaction
- + rentProduct(buyer, seller, product) : transaction

#### ReportService

- + viewAllReports(): reports
- + viewReportsByName(entityName): reports
- + resolveReport(moderator, reportId)
- + hideEntity(entityName, entityId)

#### CommentsService

- + insertToParent(comment, parentComment)
- + getAllChildren(parentComment)
- + getAllDirectChildren(parentComment)
- + deleteComment(comment)
- deleteAllChildren(parentComment)

### 1.4 Repositories Definitions

repository

#### BilkenteerRepository

- + findByID(bilkenteerID)
- + findByEmail(email)
- + findByEmailAndPassword(email, password)
- + InsertBilkenteer(email, password)
- + DisableBilkenteer(bilkenteerID)

#### ModeratorRepository

- + findByID(id)
- + findByEmail(email)
- +

findByEmailAndPassword(ema password)

- + InsertModerator(email, password)
- + DisableBilkenteer(id)

#### RequestTransactionRepository

- + findByProductID(productID)
- + findByBuyerID(buyerID)
- + cancelByBuyerID(buyerID)
- + cancelByProductID(productID)
- + cancel(buyerID, productID)
- + insert(buyerID, productID, price, period)

#### **TransactionRepository**

- + findForBilkenteer(id)
- + findOngoing(bilkenteerID)
- + findCompleted(bilkenteerID)
- + listByType(type, bilkenteerID)

### NotificationRepository

- + fetchUnseenFor(userID)
- + markSeenByld(id)
- + insert(content, type, userID)

#### ProductTagRepository

- + findProducts(tagName)
- + addProduct(tagName, productID)
- + insertTag(tagName)
- + findSubscribers(tagName)
- + subscribe(tagName)
- + acceptTag(tagName)

### **ForumPostRepository**

- + listByType(type)
- + insert(content, posterID, type)
- + addComment(id, commentId, posterID, content)
- + getByHastag(hashtag)

#### ReportsRepository

- + makeReport(reporterID, entityName, entityId, content)
- + resolveReport(reportID)
- + listByEntity(entityName)

## MessageRepository

- + insertMessage(threadID, content)
- + getForUser(userId)
- + makeNewThread(initiatingUserId, receivingUserId)

### ProductRepository

- + findByID(id)
- + listByPrice()
- + listByDate()
- + listByType()
- + insertProduct(sellerID)
- + hideByID(id)
- + showByID(id)
- + updateProductStatus(productId, status)

#### 1.5 Class Diagram (https://drive.google.com/file/d/1m5bt09tBYpI02JH-K3RN6R6GFIjE3L7C/view?usp=sharing) <<enumeration>> ForumPostType **ProductController** PRICE ASCENDING + PRICE\_DESCENDING AuthController AdminController RilkenteerController + TRENDING + POST\_DATE getProduct(productID: UUID) + deleteProduct(productID: UÚID) + bilkenteerLogin(UserLoginDto) + registerModerator(ModeratorDto) registerBilkenteer(BilkenteerDto) + getProductsByUserID(userID: UUID) + searchProducts(query: String, filters: FiltersDTO, sortBy: SortType) + authenticateModerator(UserLoginDto, OTP: String) + deactivateModerator(ModeratorID: LILIID) + moderatorLogin(UserLoginDto) + getAnalytics() FiltersDTO + adminLogin(Key: String, Password:String) - tags: List<Tag> maxPrice: double minPrice : double - minRating: int - maxRating: int ModeratorController InboxController InboxController ReportController ForumController + sendTextMessage(message: Message) getChat(userID: UUID, recipientUserID: UUID) ReportService <<interface>> RedisOTPStore OTPStoreStrategy redisConnection StoreOTP(email, otp) GetOTP(email) <<interface>> ReportableEntity ForumService OTPManager <<Interface>> generateURL(): url Report IDGenerationStrategy + disable() otpStrategy ModeratorService + enable() TransactionService generateID(): ID · isDisabled() : disabled <<enumeration>> getEntityName(): tableName + generateOTP(): otp + getEntityID(): id + saveOTP() + makeReport(reportEntity) : Singleton UUID + RESOLVED UUIDGenerator report Generator + UNRESOLVED AuthService MarketService ContactInfo - otpStrategy <<enumeration>> ProductStatus - phoneNumbers Role loginBilkenteer() User + AVAILABLE Subscription <<enumeration>> - district + RENTED + SUSPENDED + SOLD + DELETED + RETURNED registerBilkenteer() + BILKENTEER ForumPostType InboxService - city bilkenteer + MODERATOR - postalCode + loginModerator() +LOST + authenticateRequest() + FOUND Same reused + getPhoneNumbers(): Bilkenteer Class phonenumbers Bilkenteer Moderator Product <<enumeration>> for presentation + getAddress() : address ProductType purposes ForumPost Bilkenteer + PURCHASE + RENT <<enumeration>> ForumPostDTO NotificationType Notification TransactionService + forumType ForumsService + PRODUCT + FORUMPOST + INBOX + REPORT creates ◀ + forumImage + forumContent + forumUrls RequestTransaction ProductEntityBuilder + hashtags Transaction + comments <<enumeration>> ProductType ForumHashTag makeBorrowable() <<enumeration>> + makeRentable() creates <</p> TagStatus ProductTag + makePurchaseable() ForumPostAnnotation setRentRate(rate) + setPurchasePrice(price) MarketService + makeContent(name, description CommentsService images) + build(): ProductEntity createsinsertToParent(comment ReceiveMessageDTO Notification InboxService rentComment) getAllChildren(parentComment) - notification <<enumeration>> + getAllDirectChildren(parentComment) MessageThread + message MessageType + deleteComment(comment) deleteAllChildren(parentComment) Same reused L Notification

Class for presentation purposes

# 2. Design Patterns

# 2.1 Builder Pattern

The Product class internally can have different states, such as purchasable, rentable, or borrowable for the transaction type, hidden or listed for the visibility on the marketplace, sold or rented for the product's status, and disabled or enabled depending on the violation of the community guidelines. The ProductEntityBuilder class exposes a simple interface to build a product of any of the types and states above. Furthermore, the builder pattern is commonly used as an alternative to transmitting the whole entity across services. Instead, only the DTOs are passed as parameters for all communication between controllers and services.

# 2.2 Facade Pattern

The classes in the repository layer provide an abstraction over the raw SQL queries that will be performed on one or more related entity classes the repository may be dependent on. Methods like findTransaction(buyerID, productID), for example, will use the BilkenteerEntity and ProductEntity to perform SQL queries and joins before returning the Object. The implementation of all service classes is done to provide intermediate APIs to other services so that the complexity of developing individual services is reduced.

# 2.3 Strategy Pattern

Examples of strategy design pattern include the IDGeneratorStrategy and the OTPStoreStrategy. Concrete implementations are UUIDGenerator and RedisOTPStore, respectively. However, different strategies can be employed, such as AutoIncrementingIDGenerator and HashMapOTPStore strategies.