

Homework 2

Detailed Design

MODULE 5:

Using your requirements from Homework 1, create a detailed design for the zoo.

- *Identify major objects*
- *Identify major attributes and methods (define high-level classes)*
- *Identify at least five use cases for the project or stories. (If you prefer to do stories instead of use cases.)*
- *Create a sequence diagram based on use cases or user stories. (Check textbook or online for examples of sequence diagrams.)*

DETAILED DESIGN:

- **OBJECTS**

- zoo
 - operations
 - maintenance
 - finances
- personnel
 - admin
 - management
 - employee
 - customer
- assets
 - animals
 - attractions
 - retail
 - concessions

- **ATTRIBUTES (AKA: variables)**

- zoo
 - opensAt
 - closesAt
 - physicalAddress
 - totalNumberOfPersonnel
 - personnelOnShift
 - guestCount
- operations
 - manager
 - employeesManaged
 - reportsTo
- maintenance
 - manager
 - employeesManaged
 - reportsTo

- finances
 - currentOperatingCosts
 - totalOperatingCosts
 - averageOperatingCosts
 - grossRevenue
 - netRevenue
 - grossProfit
 - netProfit
 - taxRate
- personnel
 - employeeCode
 - name
 - department
 - hireDate
 - payRate
 - jobTitle
 - jobDescription
 - dateOfBirth
 - socialSecurityNumber
 - homeAddress
 - phoneNumber
 - emergencyContact
- admin
 - accessLevel
 - readLevel
 - writeLevel
 - privileges
 - restrictions
- management
 - department
 - dateStarted
 - employeesManaged
- employee
 - employeeCode
 - reportsTo
 - name
 - hireDate
 - department
 - payRate
 - jobTitle
 - skills
- customer
 - firstAttendance

- lastAttendance
- visitsToDate
- visitsPerYear
- averagePartySize
- averageNumberOfAdults
- averageNumberOfChildren
- name
- memberStatus
- assets
 - assetID
 - assetCategory
 - assetCost
 - assetCount
 - profitable
 - grossRevenue
 - netRevenue
 - grossProfit
 - netProfit
 - operatingCostPerHour
 - minimumCrewSize
 - maximumCrewSize
 - dateDeployed
 - profitToDate
 - lastMaintenanceDate
- animal
 - type
 - name
 - age
 - weight
 - birthDate
 - dateAcquired
 - lastFed
 - lastAte
 - restrictions
- attractions
 - assetID
- retail
 - assetID
- concessions
 - assetID
- **METHODS**
 - operations
 - confirmExpense() (accept / reject)

- submitExpense()
 - listExpenses()
- maintenance
 - createNewRequest()
 - submitMaintenanceRequest()
 - viewMaintenanceRequests()
- finances
 - viewAvailableFunds()
 - deposit()
 - withdraw()
 - createNewWorkOrder()
 - payWorkOrder()
- admin
 - createUser()
 - editUser()
 - deleteUser()
 - configureOrganization()
- management
 - addEmployee()
 - modifyEmployee()
 - removeEmployee()
 - clockEmployeeIn()
 - clockEmployeeOut()
 - modifyEmployeeTime()
 - addComplimentaryCredit()
 - removeComplimentaryCredit()
- employee
 - clockIn()
 - clockOut()
 - viewHours()
- customer
 - viewComplimentaryCredit()
- animals
 - createNewMealPlan()
 - deleteMealPlan()
 - viewMealPlan()
- attractions
 - viewAttractionInfo()
- retail
 - addProductToInventory()
 - removeProductFromInventory()
 - getPrice()
 - setPrice()

- concessions
 - viewInventory()
 - addToOrder()
 - submitOrder()
- **CLASSES**
 - Animal
 - Guest
 - Personnel
 - Visit
- **USE CASES / USER STORIES**
 - **USE CASE 1 -- Admit Patron Into Zoo**
 - **Actors**
 - host/hostess
 - customer
 - Zoo Information System
 - **Description**
 - A host/hostess who is logged into the ZIS will formally enter customer information that is applicable and timely in addition to processing the customer's payment for entry. Depending on the circumstances of the day and the customer's standing with the zoo, applicable discounts, promotions, or otherwise may be offered or accepted. Upon locating customer's file via their customer ID, their membership status can be determined as well.
 - **Data**
 - customer information, visit history
 - **Stimulus**
 - host/hostess initiates guest check-in process via ZIS GUI
 - **Response**
 - ZIS will confirm user of all changes to customer information and render a final confirmation of guest's entry into park in addition to logging all related data to customer's ID
 - **Comments**
 - host/hostess must be logged into ZIS and retain adequate privileges for guest check-in
 - **USE CASE 2 -- Determine Patron Credits**
 - **Actors**
 - host/hostess
 - customer
 - Zoo Information System
 - **Description**
 - A customer who has already been admitted into the zoo wants to go on the Kayak Tour attraction. The customer knows they are already a zoo member and should have 2 complimentary Kayak Tour rides available as part of their Zoo Membership

they already paid for. The customer must let a zoo host/hostess know they wish to use them and have the zoo employee confirm the credits first exist on the customer's account, and then convert them to tickets/wrist bands before finally eliminating the credits from the customer's account upon providing the customer the tickets/wrist bands.

- **Data**
 - customer information
 - complimentary credits
 - membership status
- **Stimulus**
 - customer approaches zoo employee with request
- **Response**
 - zoo employee looks up customer information in ZIS
- **Comments**
 - if customer is issued tickets or bands at the start of their visit but do not end up using them, the customer may choose to put the credits back on their account for a future visit
- **USE CASE 3 -- Zoo Employee Logging Maintenance Request**
 - **Actors**
 - maintenance worker
 - Zoo Information System
 - **Description**
 - Upon a maintenance worker's daily routine responsibilities, he observes a cage that requires maintenance and needs to be reinforced to prevent an escaped animal. The maintenance worker photographs the concern, writes a report detailing what was observed, where it is located, how urgent the concern is, the number of people required to fix, and any special clearances required for all involved in the repair. Upon submitting the maintenance request, the employees' information is included with the request as well as all relevant meta data regarding the submission. The appropriate people who need to coordinate the maintenance are then emailed with a maintenance request ID, and the employee-submitted data.
 - **Data**
 - maintenance request information
 - who, what, when, where, why, how
 - **Stimulus**
 - zoo employee notices or encounters a concern that must be addressed soon
 - **Response**
 - concern is formally logged and submitted for review by superiors with the authorization to approve/carry out the request
 - **Comments**
 - any zoo employee may log a maintenance request since they may receive some tips/suggestions from customers on occasion
- **USE CASE 4 -- Add New Diet Plan**

- **Actors**
 - animal dietician
 - Zoo Information System
- **Description**
 - After receiving a new animal into the zoo, their animal profile must have an appropriate diet plan submitted for record and review as well as for ordering and inventory planning purposes. A zoo dietician will look up the animal's profile using the animal's identifying characteristics and/or unique PIN and will be able to upload a meal plan and other health recommendations digitally where it will be stored and associated with their PIN and made available to any zoo employee with access to animal profiles.
- **Data**
 - dietary and health recommendations and guidelines
 - unique meal plans
- **Stimulus**
 - zoo acquires new animal(s)
- **Response**
 - zoo personnel generate new animal profile and associate unique meal plan(s) to each animal's profile
- **Comments**
 - animals may have more than one meal plan that is acceptable and/or rotated for variety
- **USE CASE 5 -- Customer Complaint**
 - **Actors**
 - zoo employee
 - customer
 - employee's manager
 - **Description**
 - An upset customer complains to the front desk about something they witnessed and believed was wrong that an employee did/acted. The front desk host/hostess contacts their manager with the authority to take care of the customer. The employee's manager approaches upset customer and hears their side of the story before giving the customer a complimentary visit for their next time they come to the zoo. The manager must look up the customer's memberID and append a credit to their account since only managers have the access and authority to make such a transaction. If the customer is not a member of the zoo and only a one-time customer, their complimentary visit will be established on a compID and the customer will be issued a temporary card with compID number and/or barcode linking the complimentary credit explicitly to the customer.
 - **Data**
 - customer complaint
 - employee's response

- customerID / complID
 - credit type / amount
- **Stimulus**
 - customer witnesses employee doing something wrong
- **Response**
 - manager issues complimentary credit to customer to appease them
- **Comments**
 - incidents that employees are involved with will be logged to their employee record for auditing purposes
- **SEQUENCE DIAGRAMS**
 - ... in progress...