AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF Computer Science

Object Oriented Programing 1 [Java]

Summer 2020-2021
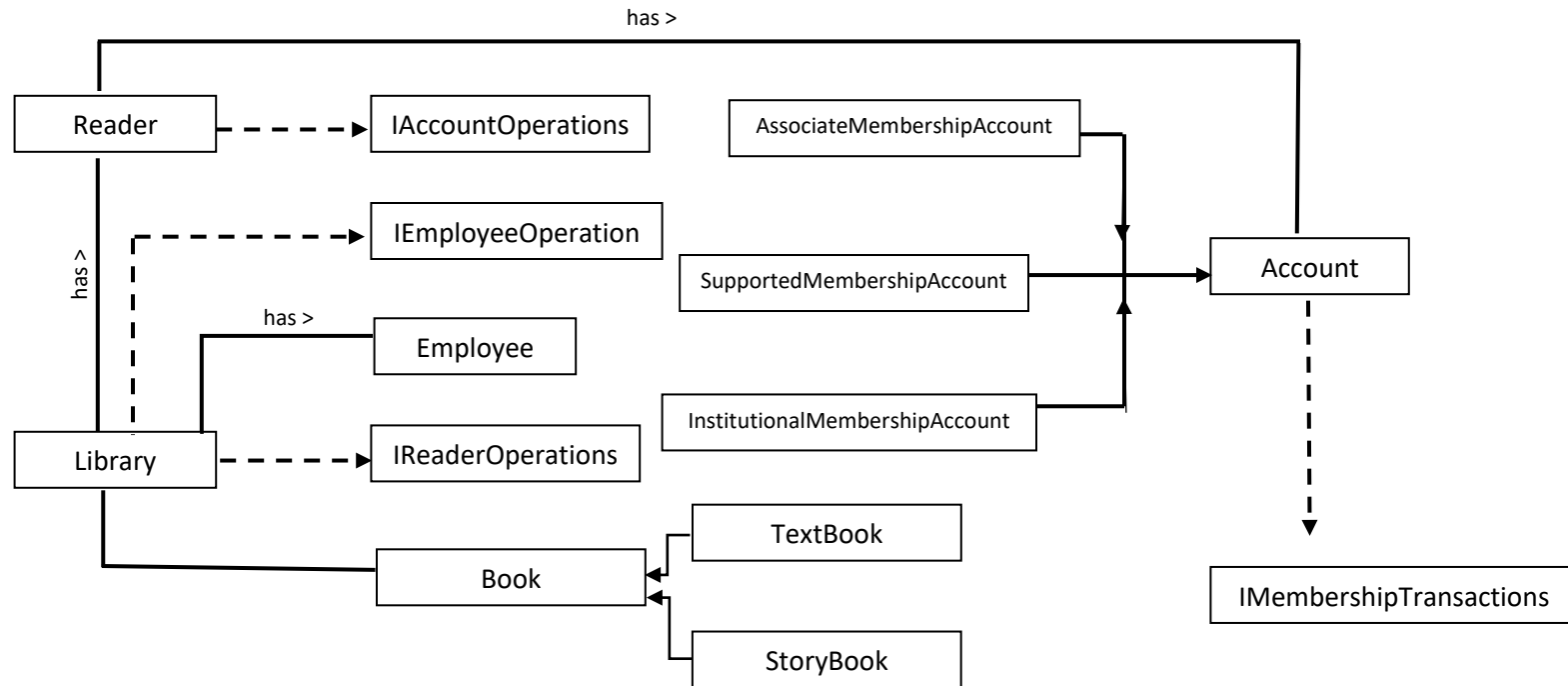
Section: H, Group: 03

<u>Presented to</u>

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Members :

Name	ID	Project Part
S M Faisal	20-44367-3	Reader, Library, Start, FileReadWriteDemo, Presenter
Sanjida Jahan	21-44684-1	Structure design, Book, Account, Employee
MD Nazmul Islam	20-44358-3	AssociateMembershipAccount, SupportedMembershipAccount, InstitutionalMembershipAccount
MD Arik Ahemed Zelan	21-44600-1	Interfaces, Text Book, Story Book, Design

Project Structure

Library Management System

Diagram

has >

Reader - - - → IAccountOperations

AssociateMembershipAccount

- - - → IEmployeeOperation

has >

SupportedMembershipAccount → Account

has >

Employee

Library - - - → IReaderOperations

InstitutionalMembershipAccount

TextBook

Book

IMembershipTransactions

StoryBook

Interfaces

IReaderMembershipTransactions	IAccountOperations
boolean renewMembership(double amount) boolean removeMembership(double amount)	boolean insertAccount(Account a) boolean removeAccount(Account a) Account searchAccount(int accountNumber) void showAllAccounts( )

IReaderOperations	IEmployeeOperations
boolean insertReader(Reader r)	boolean insertEmployee(Employee e)
boolean removeReader(Reader r)	boolean removeEmployee(Employee e)
Reader searchReader(int nid)	Employee searchEmployee(String empId)
void showAllReaders( )	void showAllEmployees( )

IBookShopOperations	IBookOperations
boolean insertBook(Book b)	void addQuantity(int amount)
boolean removeBook(Book b)	void sellQuantity(int amount)
void showAllBooks()	
Book searchBook(String isbn)	

Classes

Account[implements IReaderMembership]	Reader[implements IAccountOperations]	Employee
int accountNumber String accountHolderName double balance	String name int age int nid Account accounts[ ]	String name String empId double salary
void setAccountNumber(int accountNumber) void setBalance(double balance) void setAccountHolderName() int getAccountNumber( ) String getAccountHolderName() double getBalance( ) abstract void showDetails( ) boolean renewMembership(double amount) boolean removeMembership(double amount)	void setName(String name) void setAge(int age) void setNid(int nid) String getName( ) int getAge() int getNid( ) void showDetails() boolean insertAccount(Account a) boolean removeAccount(Account a) Account searchAccount(int accountNumber) void showAllAccounts( )	void setName(String name) void setEmpId(String empId) void setSalary(double salary) String getName( ) String getEmp( ) double getSalary( )

Book[implements BookOperations]	StoryBook[extends Book]	TextBook[extends Book]
String isbn String bookTitle String authorName double price int availableQuantity	private String category	private int standard
public Book() public Book(String isbn, String bookTitle, String authorName, double price, int availableQuantity) public void setIsbn(String isbn) public void setBookTitle(String bookTitle) public void setAuthorName(String authorName) public void setPrice(double price) public void setAvaiableQuantity(int availableQuantity) public String getIsbn() public String getBookTitle() public String getAuthorName() public double getPrice() public int getAvailableQuantity() public void addQuantity(int amount) public void sellQuantity(int amount) public abstract void showDetails()	public StoryBook() public StoryBook(String isbn, String bookTitle, String authorName, double price, int availableQuantity, String category) public void setCategory(String category) public String getCategory() public void showDetails()	public TextBook() public TextBook(String isbn, String bookTitle, String authorName, double price, int availableQuantity, int standard) public void setStandard(int standard) public int getStandard() public void showDetails()

AssociateMembershipAccount [extends Account]	SupportedMembershipAccount [extends Account]	InstitutionalMembershipAccount [extends Account]	Library[implements IReaderOperations, IEmployeeOperations, BookShopOperations]
double membershipDuration	double discountRate	double membershipDuration	Reader readers[ ] Employee employees[ ] Book books[]
void setmembershipDuration(double membershipDuration) double getmembershipDuration() void showDetails( )	void setdiscountRate(double discountRate) double getdiscountRate() void showDetails( )	void setmembershipDuration(double membershipDuration) double getmembershipDuration() void showDetails( )	boolean insertReader(Reader c) boolean removeReader(Reader c) Reader searchReader(int nid) void showAllReader() boolean insertEmployee(Employee e) boolean removeEmployee(Employee e) Employee searchEmployee(String empId) void showAllEmployees() boolean insertBook(Book b) boolean removeBook(Book b) void showAllBooks() Book searchBook(String isbn)

Start

The Start class contains the main method. Inside the main method the application prompts the user to choose among the following options:

1. Employee Management
2. Reader Management
3. Reader Account Management
4. Reader Membership[Renew Membership & Remove Membership]
5. Exit

Upon choosing any of the option the user is given some further options to choose from:

Options for Employee Management:
1. Insert New Employee
2. Remove Existing Employee
3. Search Existing Employee
4. Show All Employee
5. Go Back

Options for Reader Management:
1. Insert New Reader
2. Remove Existing Reader
3. Search Existing Reader
4. Show All Reader
5. Go Back

Options for Reader Account Management:
1. Insert New Account
2. Remove Existing Account
3. Search Existing Account
4. Show All Account
5. Go Back

Options for Reader Membership Transactions[Renew Membership & Cancel Membership]:
1. Renew Membership
2. Cancel Membership
3. Show All Operaions

4. Go Back
Options for Book Management :
   1. For Employee
   2. For Reader
   3. Go Back

END