Maria Galliva, Norhan Abbas   September 12, 2019
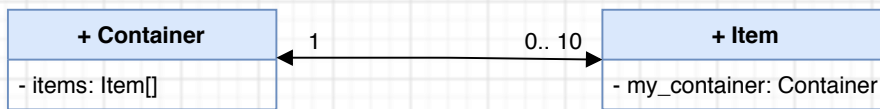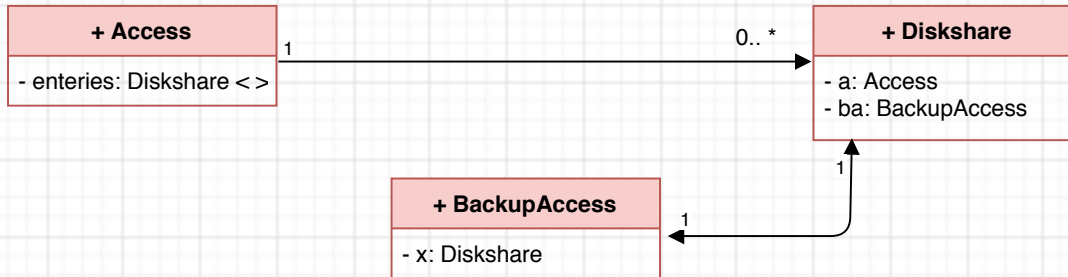
ESOF 322

Homework 1

- *Kindly know that the* <mark>*highlighted parts*</mark> *are regarded as comments and not actual parts of our code*

- *Numbering the lines in our pseudocode literally mean nothing; they are there by default as we have used algorithmic package*

- *For our UML diagrams: "A" refers to "abstract", $<< >>$ are used to refer to an interface*
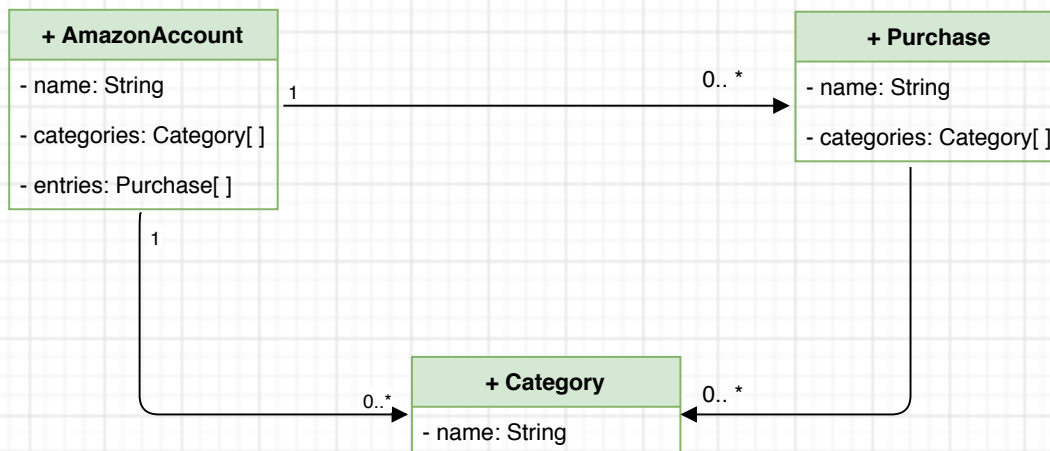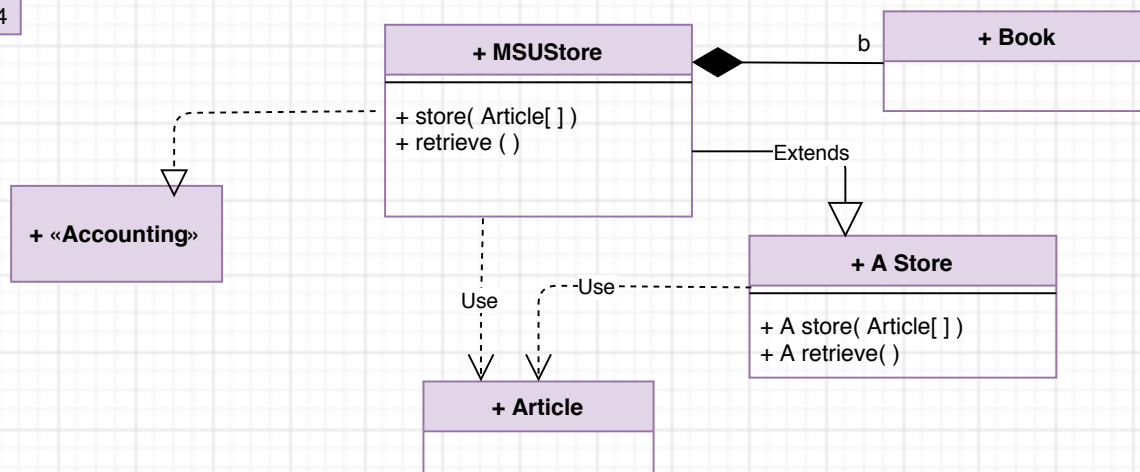
Part A: 1

+ Container

- items: Item[]

1 ←————————→ 0.. 10

+ Item

- my_container: Container

Part A: 2

+ Access

- enteries: Diskshare < >

1 ————————→ 0.. *

+ Diskshare

- a: Access
- ba: BackupAccess

+ BackupAccess

- x: Diskshare

1 ←———————— 1

Part A: 3

+ AmazonAccount

- name: String
- categories: Category[ ]
- entries: Purchase[ ]

1 ————————→ 0.. *

+ Purchase

- name: String
- categories: Category[ ]

1

0..* ————————→ **+ Category** ←———————— 0..*

+ Category

- name: String

Part A: 4

+ MSUStore

+ store(Article[ ])
+ retrieve ( )

b

+ Book

Extends

+ «Accounting»

Use

+ A Store

+ A store(Article[ ])
+ A retrieve( )

Use

+ Article

Part B

```
 1: function Interface Rentable{
 2:     public rent()
 3:     }
 4: end function

 5: function Public Class Vehicle implements Rentable{
 6:     public void rent()
 7:     }
 8: end function

 9: function Public class Truck extends Vehicle{
10:     public UnlimitedNatural weight
11:     public UnlimitedNatural power
12:     public String manufacturer
13:     public String regNo
14:     }
15: end function

16: function Public class Car extends Vehicle{
17:     public CarKind kind
18:     public UnlimitedNatural noSeats
19:     public UnlimitedNatural power
20:     public String manufacturer
21:     public String regNo
22:     }
23: end function

24: function Public class Motorbike extends Vehicle{
25:     public MbKind kind
26:     public UnlimitedNatural cylinderCap
27:     public UnlimitedNatural power
28:     public String manufacturer
29:     public String regNo
30:     }
31: end function

32: function Public class Company{
33:     public String name
34:     public Address headquarters
35:     public Employee employee
36:     public Customer customer
37:     public VehicleRentalService service
38:     public Motorbike motorbike
39:     public Car car
40:     public Truck truck
41:     public service = new VehicleRentalService()
42:     since VehicleRentalService is a part of Company class, it is instantiated
43:     }
44: end function
```

```
45: function Public class Service{
46:     public Customer customer
47:     }
48: end function

49: function Public class VehicleRentalService{
50:     public Vehicle vehicle
51:     public void offerCar()
52:     public void offerTruck()
53:     public void offerMotorbike()
54:     }
55: end function

56: function Public class Person{
57:     public String name
58:     public String email
59:     }
60: end function

61: function public class Employee extends Person{
62:     }
63: end function

64: function public class Customer extends Person{
65:     bankAccount = new BankAccount()
66:     since BankAccount is a part of Customer class, it is instantiated
67:     }
68: end function

69: function public class Subcontractor extends both Employee & Customer{
70:     even though Java does NOT allow any class to inherit from more than 1 class, C++ does
71:     }
72: end function

73: function public class BankAccount{
74:     public UnlimitedNatural number
75:     public String depositer
76:     public String bank
77:     }
78: end function
```