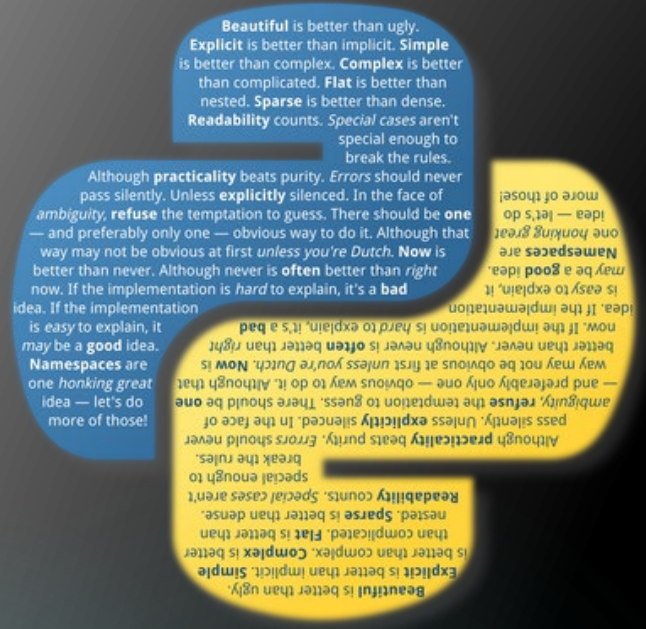
IS612 Introduction To Coding
Spring 2022

OOP



CEX 1: OOP 1

SIMPLE CLASSES AND OBJECTS

General: Bank Account Model

- A **bank account** is a financial account maintained by a bank for a customer.

BankAccount	
accountNumber: String lastName: String firstName: String taxIDNumber: String checkingBalance: float minCheckingBalance: float maxCheckingWithdrawal: float	savingsBalance: float minSavingBalance: float maxSavingWithdrawal: float savingsInterestRate: float static AccountCount = 0: int
init(lastName: String, firstName: String, taxIDNumber: String, checkingBalance: float, savingsBalance: float, savingsInterestRate: float)	
displayAccountInfo()…void depositToChecking(double d)…boolean depositToSavings(double d)…boolean withdrawFromChecking(double d)…boolean withdrawFromSavings(double d)…boolean	

Constructor Specification

- The Constructor has the signature specified and **ALL data fields must be initialized by the constructor**.
- **Data fields not defined in the constructor parameter list are specified in the following manner:**
  - **accountNumber = 'A-00' + AccountCount (*starts at 1*)**
  - **minCheckingBalance = 25% of checkingBalance**
  - **maxCheckingWithdrawal = 40% of checkingBalance**
  - **minSavingBalance = 55% of savingsBalance**
  - **maxSavingWithdrawal = 20% of savingsBalance**
- The constructor displays '**Account [*Account Number*] HAS BEEN CREATED** to the Shell when the object is created and increments the **AccountCount** by 1
- A BankAccount object **cannot be fully initialized** unless **the checkingBalance is greater than $1000.00 and the savingsBalance is greater than $500.00…if the object cannot be fully initialized the following message is displayed to the Shell: 'Account [*Account Number*] IS PENDING ADDITIONAL FUNDS' and all balances and allowances are set to 0.**

General: Bank Account Model

- A **bank account** is a financial account maintained by a bank for a customer and has the following behavior.

BankAccount (Method Specifications)
displayAccountInfo()…void *See insert for required data and format*
depositToChecking(double d)…boolean *Adds d to the checkingBalance and displays '$[d] deposited to Checking' …returns true*
depositToSavings(double d)…boolean *Adds d to the savingsBalance and displays '$[d] deposited to Savings' …returns true*
withdrawFromChecking(double d)…boolean *Subtract d from the checkingBalance after checking to ensure the amount of d is available and that the remaining checkingBalance is greater than the minCheckingBalance and displays '$[d] withdrawn from Checking' returns true… if either condition is not met then display message 'Withdraw cannot be made' and returns false*
withdrawFromSavings(double d)…boolean *Subtract d from the savingsBalance after checking to ensure the amount of d is available and that the remaining savingsBalance is greater than the minSavingBalance and displays '$[d] withdrawn from Savings' return true… if either condition is not met then display message 'Withdraw cannot be made' and returns false*

```
Account Number: A-002
Name on Account: Richard Thomas
Tax ID Number: 654888
_____________BALANCES_____________
         Checking: $6590.02
         Savings: $5635.0
_____________ALLOWANCES_____________
Minimum Checking Balance: $1340.0
Maximum Checking Withdrawal: $2144.0
Minimum Savings Balance: $2970.0000000000005
Maximum Savings Withdrawal: $1080.0
-----------------------------------------------------
```

Task: Object Creation

- Create the following BankAccount objects.

Account Reference (Identifier)	Last Name	First Name	Tax IDNumber	Checking Balance	Savings Balance	Savings Interest Rate
B1	Johnson	Bobby	123456	2390.00	3400.00	2%
B2	Thomas	Richard	654888	5360.00	5400.00	2.5%
B3	Turner	James	622898	360.00	5400.00	2.1%

Task: Validate Model

- Perform the following operations to validate the BankAccount models operation

- Test 1: Deposit $100.32 to Johnson Checking Account
- Test 2: Deposit $2,000.00 to Johnson Savings Account
- Test 3: Withdraw $90.00 from Johnson Checking Account
- Test 4: Display Johnson Account Information
- Test 5: Deposit $1,230.02 to Thomas Checking Account
- Test 6: Deposit $1,000.00 to Thomas Savings Account
- Test 7: Withdraw $765.00 from Thomas Savings Account
- Test 8: Display Thomas Account Information
- Test 9: Display Account Information for Turner Account