CLASS DIAGRAM TO JAVA CODE

Step 1: Download the plugins

1. Go to *Help*; *Eclipse Marketplace* and select the *Eclipse Marketplace.*
2. Install the following plugins:
   a. *Papyrus Software Designer 1.1.0* (to draw the class diagram).
   b. *Acceleo UML to Java generator* (to convert the class diagram to Java code).
   Note: This is Open Source Software, and installs per machine, not per login account.
3. Check that the plugins have been installed by going to the marketplace and clicking on the installed tab.

Step 2: Open the designer (Papyrus Project)

1. Go to *File; New; Other; Papyrus; Papyrus Project*. Click *Next*.
2. Click Next. Name the project ***Tiger Cub Papyrus*** and click on *Next.*
3. Select *Class Diagram* and click on *Finish.*

Step 3: Set up your environment (to import the Java primitive types)

Importing the Java primitive types that you will need for the class diagram.

1. Go to Windows, Show View and show the Model Explorer and Properties tabs (they should now be in the bottom half of your screen).
2. Right click on the ***Tiger Cub Papyrus*** model under the Model Explorer tab. Select *Import; Import; Registered Package* and select *Java Primitive Types*.
   If you do not see the Tiger Cub Papyrus model, go to Help (in the Eclipse menu) and go to Install New Software. Enter https://download.eclipse.org/releases/latest in Work With. Expand Modelling. Select Papyrus for UML and click on Next. Try importing the java primitive types again.
3. Save.

Step 4: Design a class

1. Drag a class from the palette.
2. Name the class ***TigerCub*** *(*either on the diagram or in the properties tab for that class). Make the visibility public.
3. Add members by dragging a *property* from the palette to the class. Set the name, visibility etc. for that property.
   Add the following members, making the visibility of each member private. Use the … button to select the most appropriate Java primitive type (you will have to select String from the

primitive types).

Member Name	Data Type	Visibility
name	String	Private
weight	float	Private
energy	byte	Private
smarts	Byte	Private

4. Add methods by dragging an *operation* from the palette to the class. Set the name and visibility for the operation. Add the following methods, making their visibility public:

Methods	Visibility
isBorn	Public
Eat	Public
getInjured	Public
Play	Public
getHealthCheck	Public

5. Save the project

Step 5: Generating Java Code

1. Make sure the model is saved.
2. Right click on the project name (Tiger Cub Papyrus) in the package explorer. Select *Run As; Run Configurations*.
3. Select *Acceleo UML 2 to Java Generation.*
4. Save the config file as *Tiger Cub Config.*
5. Browse to the model that you are working on (model – Tiger Cub Papyrus.uml) and click on *Run*.
6. The folder *org.eclipse.uml.to.java* is created and contains the code generated from the class diagram.

Check your code. Does it contain errors? If so, you will need to delete the current code that has been generated, fix the error(s) in the class diagram and regenerate the code.

Exercise

Generate code for the following class definition:

Member Name	Data Type	Visibility
studentID	Positive whole number.	Private
studentName	String	Private
courseName	String	Private
percentageAbsent	Decimal point number.	Private
feesPaid	Boolean	Private
amountOwing	Monetary value.	Private

Methods	Visibility
registerStudent	Public
removeStudent	Public
updateStudentDetails	Public
printStudentDetails	Public