Practice Questions Midterm

class Alpha {

public void foo(){

System.out.println(“Alpha”);

}

}

public class Beta extends Alpha {

protected void foo(){ public void

System.out.println(“Beta”);

}

//DO NOT ALTER MAIN

public static void main(String[] args){

Alpha a;

a = new Beta();

a.foo();

}

}

public class C {

public static void main(String[] args){

Alpha a = new Beta();

a.foo();

}

}

Error Msg: Beta.java:7:

public class Egg {

private int i;

Yolk y;

class Yolk {

public void setI(int value){ i = value;}

}

public static void main(String[] args){

Egg e = new Egg();

e.y.setI(5);

On doit créer un nouvel objet

System.out.println(“i=”+e.i);

}

}

Desired Output: **i=5**

Error Msg: (Runtime) Egg.java:9

class Father {

public final void talk(){System.out.println(“Manners”);}

}

public class Son extends Father {

public final void talk(){

System.out.println(“Sloppy”);

Super.talk()

}

public static void main(String[] args){

Son s = new Son();

s.talk();

}

}

Desired Output:

**Sloppy**

**Manners**

Error Msg: Son.java: 5

class Animal {

public void walk(){

System.out.println(“Walk like an animal”);

}

}

class Tiger extends Animal {

public void walk(){

Super.talk()

System.out.println(“Walk like a Tiger”);

}

}

public class Cat extends Tiger {

public void walk(){

Super.walk()

System.out.println(“Walk like a Cat”);

}

public static void main(String[] args){

Animal c = new Cat();

c.walk();

}

}

Desired Output:

**Walk like an animal**

**Walk like a Tiger**

**Walk like a Cat**

Error Msg: none. Output NOT CORRECT

interface Face {

void eyes();

void mouth();

void nose();

void ears();

}

public class Head implements Face {

public void eyes(){}

public void mouth(){}

public void nose(){}

Public void ears(){}

}

Error Msg: Head.java:8

**package Friendly;**

public class Me{

void greet(){ System.out.println(“Hello”);}

}

**package Protected;**

import Friendly.Me;

public class Friend extends Me {

protected void talk(){

greet();

System.out.println(“Hi”);

}

public static void main(String[] args){

Friend f = new Friend();

f.talk();

}

}

Desired Ouput:

**Hello**

**Hi**

Error Msg: Protected.Friend.java:5

public class Awake {

public void Awake(String time){

System.out.println(“Time is “+time);

}

public static void main(String[] args){

Awake a = new Awake(“up!”);

}

}

Desired Output: **Time is up!**

Error Msg: Awake.java:6

class Five {

public void number(int x){

System.out.println(x+5);

}

}

public class Four extends Five {

public void number(double x){

System.out.println(x+4);

}

public static void main(String[] args){

Five f = new Four();

f.number(3.141579);

}

}

Pas compris ???

Error Msg Four.java: 12

interface GeneralI {}

class Scarry implements GeneralI {

public void boo(){

System.out.println(“Boo”);

}

}

class UnHappy extends Scarry {

public void boo(){

System.out.println(“Hoo”);

}

}

public class Main {

public static void main(String[] args){

foo(new UnHappy());

}

private static void foo(GeneralI x){  
 x.boo();

}

}

Can’t instantiate GeneralI because is an interface.

Error Msg:Main.java:19

public class RaceCar {

String driverName;

public static void main(String[] args){

if (args[0] != null)

driverName = args[0];

}

}

We can’t use args[0].

Error Msg:RaceCar.java:5

interface Phone { ???

void number();

void message();

}

abstract class FancyPhone implements Phone {

public void number(){

System.out.println(“The number you are calling is not available”);

}

public void message(String m){

System.out.println(“The message is “+m);

}

}

public class ExecPhone extends FancyPhone implements Phone {

public static void main(String[] args){

ExecPhone exec = new ExecPhone();

exec.number();

exec.message(“Hello”);

}

}

Overload problem ? ExecPhone implements Phone but it first extends FancyPhone that already implements phone

Error Msg: ExecPhone.java:13

public class Big {

private Small s = new Small();

private class Small {

public int size = 1;

}

public static void main(String[] args){

Big b = new Big();

b.size;

}

}

B.size doesn’t exist.

Error Msg:Big.java:8

**package comp2525;**

public class A{

int x;

protected double y;

}

**package comp1510;**

import comp2525.A;

import comp2525.B;

public class C extends A{

public C(int x, int y) {

this.x = x; ???

this.y = y;

}

}

Error Msg:C.java:7**Give the output**

public class Student {

int numStudents = 0;

public Student(){

numStudents++;

}

public static void main(String[] args){

Student s1, s2, s3;

s1= new Student();

s2= new Student();

s3= new Student();

System.out.println(“Total number of students is “+s3.numStudents);

}

}

**Output : 1;**

class Cup {

Cup(int marker) {System.out.println("Cup(" + marker + ")");}

void f(int marker) {System.out.println("f(" + marker + ")");}

}

class Cups {

static Cup c1;

static Cup c2;

static {

c1 = new Cup(1);

c2 = new Cup(2);

}

Cups() {System.out.println("Cups()");}

}

public class ExplicitStatic {

static Cups x = new Cups();

static Cups y = new Cups();

public static void main(String[] args) {

System.out.println("Inside main()");

}

}

**Output**

Cup(1)

Cup(2)

Cups()

Cups()

Inside main()

abstract class Shape { ???

void draw(){

System.out.println(“no shape yet”);

}

Shape(){

System.out.println(“creating shape”);

draw();

System.out.println(“finished drawing shape”);

}

}

public class Circle extends Shape {

int radius = 1;

Circle(int r){

radius = r; problème non ?

System.out.println(“Circle has radius = “+radius);

}

void draw(){

System.out.println(“Draw Circle, radius = “+radius);

}

public static void main(String[] args){

new Circle(5);

}

}

Pas compris la réponse

**Output**

Creating shape

Draw circle, radius = 0

Finished drawing shape

Circle has radius = 5

interface Greeting {

String sendGreeting();

}

class Hello implements Greeting {

public String sendGreeting(){

return “Hello”;

}

}

class Goodbye implements Greeting {

public String sendGreeting(){

return “Goodbye”;

}

}

public class Main {

static Greeting g1, g2;

public static <T> void swap(T a, T b){

T temp = a;

a = b;

b = temp;

}

public static void main(String[] args){

g1 = new Hello();

g2 = new Goodbye();

System.out.println(g1.sendGreeting());

Swap<Greeting>(g1, g2);

System.out.println(g1.sendGreeting());

}

}

**Output**

Hello

Hello (dans swap, les fonctions sont passées par valeur)

interface Animal {

void draw();

}

class Dog implements Animal {

public void draw(){

System.out.println(“Dog”);

}

}

class Kohkoh extends Dog {

public void draw(){

super.draw();

System.out.println(“Kohkoh”);

}

}

class Mastif extends Dog implements Animal {

public void draw(){

System.out.println(“Mastif”);

}

}

class Ridgeback extends Kohkoh {

Mastif m = new Mastif();

public void draw(){

m.draw();

super.draw();

System.out.println(“Ridgeback”);

}

}

public class Kennel {

public static void main(String[] args){

Animal a;

Dog d;

d = new Mastif();

a = new Ridgeback();

a.draw();

d.draw();

a = d; ???

a.draw();

}

}

**Output**

Mastif

Dog

Kohkoh

Ridgeback

Mastif

*Mastif*

public class Alphabet {

public void display(){ System.out.print("Alpha");}

}

public class A extends Alphabet {

public void display(){ System.out.print("A");}

}

public class B extends Alphabet {

public void display(){ System.out.print("B");}

}

public class C extends Alphabet {

public void display(){ System.out.print("C");}

}

public class D extends Alphabet {

public void display(){ System.out.print("D");}

}

public class E extends Alphabet {

public void display(){ System.out.print("E");}

}

public class Soup {

private Alphabet[] bowl;

public void go(){

bowl = new Alphabet [5];**//**

bowl [0] = new E();

bowl [1] = new C();

bowl [2] = new D();

bowl [3] = new B();

bowl [4] = new A();

for (int i=0; i< bowl.length; i++)

bowl [i].display();**//Question 7**

System.out.println("");//move to new line

change(bowl [0], new A());

bowl [0].display();**//Question 8**

System.out.println("");//move to new line

bowl [0] = new E();

change(bowl, new A(), 0);

bowl [0].display();**//Question 9**

}

public void change(Alphabet a, Alphabet b){

a = b;

}

public void change(Alphabet[] a, Alphabet b, int i){

a[i] = b;

}

public static void main(String[] args){

Soup x = new Soup();

x.go();

}//end main

}//end Soup

E C D B A  
E  
A

Create a 2D Map that stores Students based on their Province and City ???

public class Wrapping {

protected int i;

public Wrapping(int x) { i = x; }

public int value() { return i; }

}

public class Parcel {

public Wrapping wrapping(int x) {

//return an anonymous inner class object of Wrapping type

//with overloaded method “public int value (){ return 47\*i;}”

}

public static void main(String[] args) {

Parcel p = new Parcel();

Wrapping w = p.wrapping(10);

}

}

In the above classes provide the missing code.

Given an ArryList is-a List and a List is-a Collection is the following true?

ArrayList<String> is-a Collection<String>

Oui mais pas compris pourquoi

Given interface FooBar<X,Y> extends Silly<X> which of the following ARE subtypes of Silly<String>?

FooBar<String, String> No

FooBar<String, Integer> Yes

FooBar<Integer, String> No

FooBar<String, Exception> Yes

FooBar<Integer, Integer> No

FooBar<Exception, Integer> No

Given

static <T> T pick(T a, T b){ return b;}

Is the following an error or not? If an error, explain why, if not give the return type.

Collection c = pick(new Set<String>(), new Stack<String>());

It would work because there all collections (need some more information)

If the code below gives an error explain why, if not explain why.

public static void addNumbers(List<? super Integer> list){

for (int i=1; i<10; i++){

list.add(i);

}

}

///in other code:

addNumbers(new ArrayList<Number>());

If the code below gives an error explain why, if not explain why.

void addFirst(List<? extends Number>listA, List<Integer> listB){

listA.set(0,listB.get(0));

}

class Parcel4 {

private class PContents implements Contents {

private int i = 11;

public int value() { return i; }

}

protected class PDestination implements Destination {

private String label;

private PDestination(String whereTo) {

label = whereTo;

}

public String readLabel() { return label; }

}

public Destination destination(String s) {

return new PDestination(s);

}

public Contents contents() {

return new PContents(); }}

public class TestParcel {

public static void main(String[] args) {

Parcel4 p = new Parcel4();

Contents c = p.contents();

Destination d = p.destination("Tasmania");

Parcel4.PContents pc = p.new PContents();//ERROR

}

}

The above class has an error on the line indicated. Explain why there is an error.

public class MyExceptionTest {

public void foo() throws Exception {

System.out.println("foo");

}

public void bar() throws Exception {

System.out.println("bar");

throw new Exception();

}

public void test() throws Exception {

System.out.println("starting test");

try{

foo();

bar();

System.out.println("finished try");

}catch(Exception e){

System.out.println("caught an exception");

//////// **throw e;**

}

finally{

System.out.println("finally");

}

System.out.println("finished test");

}

public static void main(String[] args) throws Exception{

(new MyExceptionTest()).test();

}

}

1. Give the output for the above code. Note the line commented out.

Starting test

Foo

Bar

caught an exception

Finally

Finished test

1. Give the output for the above code if the “throw e” line was not commented out

Starting test

Foo

Bar

caught an exception

Finally

class Example{

public void open() throws FileNotFoundException{

System.out.println(“attempting to open file”);

throw new FileNotFoundException();

}

public void close() throws CloseException {

System.out.println(“attempting to close file”);

throw new CloseException();

}

public static void main(String[] args) throws Exception{

Example e = new Example();

try{

e.open();

System.out.println(“after opening file”);

}finally{

System.out.println(“finally”);

e.close();

System.out.println(“after closing file”);

}

System.out.println(“end of program”);

}

}

1. Give the output. State any exception(s) that are displayed on exit.

attempting to open file

Finally

attempting to close file

Throw error CloseException()

class LanguageException extends Exception{}

class JavaException extends LanguageException{}

public class Test {

public void a() throws LanguageException{

throw new LanguageException();

}

public void b() throws JavaException{

throw new JavaException();

}

public static void main(String[] args){

Test t = new Test();

try{

t.a();

t.b();

}

catch(LanguageException l){}

catch(JavaException j){}

System.out.println(“finished main”);

}

}

4. Give the output or indicate any errors and explain why.

class I {

int i = 9;

int j;

I() {

prt("i = " + i + ", j = " + j);

j = 39;

}

static int x1 = prt("static I.x1 initialized");

static int prt(String s) {

System.out.println(s);

return 47;

}

}

public class B extends I {

int k = prt("B.k initialized");

B() {

prt("k = " + k);

prt("j = " + j);

}

static int x2 =

prt("static B.x2 initialized");

public static void main(String[] args) {

System.out.println("Started program");

**B b;**

}

} ///:~

1. Give the output for the above program

class I {

int i = 9;

int j;

I() {

prt("i = " + i + ", j = " + j);

j = 39;

}

static int x1 = prt("static I.x1 initialized");

static int prt(String s) {

System.out.println(s);

return 47;

}

}

class B extends I {

int k = prt("B.k initialized");

B() {

prt("k = " + k);

prt("j = " + j);

}

static int x2 =

prt("static B.x2 initialized");

}

public class Driver {

public static void main(String[] args){

**new B();**

}

}

1. Give the output for the above program (note the slight change from the previous question)

public class List{

Node head;

class Node{

int data;

Node next;

Node(int d){

data = d;

}

}

public void addInOrder(int d){

if (head == null)

head = new Node(d);

else{

Node cur = head;

Node pre = cur;

while((cur != null) && (cur.data < d)){

pre = cur;

cur = cur.next;

}

pre.next = new Node(d);

pre.next.next = cur;

}

}

}

Make the above code Generic. You will need to use interface Comparable<T>