

ITI 1121
Assignment #1
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Question 1)

A) Expense

```
public abstract class Expense {  
  
    //instance variables  
    private String description;  
  
    //constructor  
    public Expense(String description) {  
        this.description = description;  
    }  
  
    //methods  
    public String getDescription() {  
        return this.description;  
    }  
  
    public abstract double getAmount();  
}
```

B) Transportation

```
public class Transportation extends Expense {  
  
    private String destination;  
  
    public Transportation(String description, String destination) {  
        super(description);  
        this.destination = destination;  
    }  
  
    public String getDestination() {  
        return this.destination;  
    }  
}
```

C) PrivateCar

```
public class PrivateCar extends Transportation{

    public static final double RATE = 0.427;
    private int distance;

    public PrivateCar(String description, String destination, int distance) {
        super(description, destination);
        this.distance = distance;
    }

    public int getDistance() {
        return this.distance*RATE;
    }
}
```

D) Airfare

```
public class Airfare extends Transportation {

    private double amount;

    public Airfare(String description, String destination, double amount) {
        super(description, destination)
        this.amount = amount;
    }

    public double getAmount() {
        return this.amount;
    }
}
```

E) Meal

```
public class Meal extends Expense{
    private int numberOfMeals;
    public Meal(String description, int numberOfMeals) {
        super(description);
        this.numberOfMeals = numberOfMeals;
    }
    public int getNumberOfMeals() {
        return this.numberOfMeals;
    }
}
```

F) Breakfast

```
public class Breakfast extends Meal{
    public static final double ALLOWANCE = 11.55;

    public Breakfast(String description, int numberOfMeals) {
        super(description, numberOfMeals);
    }

    public getAmount() {
        return (ALLOWANCE*getNumberOfMeals());
    }
}
```

G) Lunch

```
public class Lunch extends Meal{
    public static final double ALLOWANCE = 11.30;

    public Lunch(String description, int numberOfMeals) {
        super(description, numberOfMeals);
    }

    public getAmount() {
        return (ALLOWANCE * getNumberOfMeals());
    }
}
```

H) Dinner

```
public class Dinner extends Meal{

    public static final double ALLOWANCE = 31.80;

    public Dinner(String description, int numberOfMeals) {
        super(description, numberOfMeals);
    }

    public getAmount() {
        return (ALLOWANCE * getNumberOfMeals());
    }
}
```

Complete the partial implementation of the class ExpenseTracker:

```
public class ExpenseTracker {  
    private Expense[] expenses;  
  
    private int size; // keeps track of the number of elements  
  
    public ExpenseTracker( int capacity ) {  
        size = capacity;  
        size = 0;  
    }  
  
    // a method has been defined for adding expenses to the tracker  
    public boolean add( Expense e ) {...}  
  
    public double getTotal() {  
        for (int i = 0; i < expenses.length; i++) {  
            double sum = 0;  
            sum += expenses[i];  
            return sum;  
        }  
    }  
}
```

2)

- A) public, protected, package
- B) public, protected
- C) public