

ΕΡΓΑΣΙΑ JAVA

Στην παρούσα αναφορά θα αναλυθεί πως έγινε η υλοποίηση της εργασίας java για το μάθημα “Αντικειμενοστραφής προγραμματισμός”.

Σύμφωνα με την εκφώνηση η εργασία δεχεται 3 ορίσματα εναν ακεραιο και δύο string. Ο έλεγχος για το πλήθος των παραμέτρων είναι απλός και φαίνεται παρακάτω:

```
public class Main {  
    public static void main(String[] args) {  
        if(args.length != 3) {  
            System.out.println("Error. Need 3 args.");  
            System.exit(0);  
        }  
        int N = Integer.parseInt(args[0]);  
    }  
}
```

Τα ορίσματα των δημιουργημάτων Movement, Condition, Technique και Material ορίζονται σαν πίνακες από String με 3 αντικείμενα και περιέχουν τις τιμές που ζητούνται από την εκφώνηση.

```
String[] Movement = new String[] {"impressionism", "expressionism", "naturalism"};  
String[] Condition = new String[] {"bad", "good", "excellent"};  
String[] Technique = new String[] {"oil", "aquarelle", "tempera"};  
String[] Material = new String[] {"wood", "stone", "iron"};
```

Για τη σωστή λειτουργία των Artifact οι κλάσεις Artifact και Masterpiece(υποκλάση του Artifact) ορίστηκαν ως abstract και οι κλάσεις Painting και Sculpture ως υποκλάσεις της Masterpiece. Η μέθοδος getInfo() υλοποιήθηκε με overriding σε όλες τις υποκλάσεις. Επίσης η μέθοδος evaluate προκειμένου να μπορεί να καλείται είτε με είτε χωρίς το όρισμα condition χρησιμοποιήθηκε overloading.

```

@Override
public boolean evaluate(String movement, String condition){
    if(this.movement.equals(movement) && this.condition.equals(condition))
        return true;
    else if(this.movement.equals(movement)) {
        if(this.condition.equals("excellent"))
            return true;
        else
            return false;
    }
    else
        return false;
}

@Override
public boolean evaluate(String movement){ //no condition ->condition is good

    if(this.movement == movement) {
        if(this.condition.equals("good"))
            return true;
        else if(this.condition.equals("excellent"))
            return true;
        else
            return false;
    }
    else
        return false;
}

```

Για την αρχικοποίηση των τιμών των artifacts έχουν γίνει κάποιες παραδοχές:

- Το έτος δημιουργίας είναι μεταξύ 0 και 2022CE.
- Το μήκος και το πλάτος των πινάκων είναι μεταξύ 0 και 4000cm.
- Ο όγκος των γλυπτών είναι μεταξύ 0 και 5000 L.

Η επιλογή για το αν στην κάθε θέση του πίνακα των artifacts θα μπει painting ή sculpture γίνεται τυχαία μέσω της rand

```

k = rand.nextInt(2);

if(k == 0) {
    k = rand.nextInt(3);
    String technique = Technique[k];
    int length = rand.nextInt(4000);
    int width = rand.nextInt(4000);
    artifacts[i] = new Painting(i, year, creator, movement, condition, length, width, technique);
}
else {
    int volume = rand.nextInt(5000);
    k = rand.nextInt(3);
    String material = Material[k];

    artifacts[i] = new Sculpture(i, year, creator, movement, condition, volume, material );
}
}

```

Τέλος η μεθοδος auction ορίστηκε ως public static void για να μπορεί να καλείται σωστά απο τη main.

Η μεταγλώττιση του project γίνεται ενώ βρίσκοσαστέ στο φακελο με τα αρχεια .java χρησιμοποιώντας την εντολή javac *.java.

Τρέχοντας το πρόγραμμα με τα ορίσματα “15 impressionism good” έχουμε το παρακάτω αποτέλεσμα:

```
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Masterpiece
Creating an instance of Sculpture
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Sculpture
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Sculpture
Creating an instance of Sculpture
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Sculpture
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
Creating an instance of Artifact
Creating an instance of Masterpiece
Creating an instance of Painting
```

The index is 0
The creator is Creator0
The year is 2
The movenent is naturalism
The condition is good
The legth is 558 cm
The width is 946 cm
The technique is aquarelle
The surface is 527868 sqcm
false
The index is 1
The creator is Creator1
The year is 357
The movenent is naturalism
The condition is excellent
The legth is 626 cm
The width is 2963 cm
The technique is oil
The surface is 1854838 sqcm
false
The index is 2
The creator is Creator2
The year is 1048
The movenent is impressionism
The condition is excellent
The legth is 2549 cm
The width is 610 cm
The technique is tempera
The surface is 1554890 sqcm
true
The index is 3
The creator is Creator3
The year is 1960
The movenent is impressionism
The condition is excellent
The legth is 1121 cm
The width is 2550 cm
The technique is tempera
The surface is 2858550 sqcm
true
The index is 4
The creator is Creator4
The year is 173
The movenent is naturalism
The condition is bad
The material is wood
The volume is 2002
false
The index is 5
The creator is Creator5
The year is 94

```
14136
The index is 5
The creator is Creator5
The year is 94
The movenent is naturalism
The condition is excellent
The legth is 1446 cm
The width is 2017 cm
The technique is tempera
The surface is 2916582 sqcm
false
The index is 6
The creator is Creator6
The year is 1385
The movenent is impressionism
The condition is bad
The material is iron
The volume is 4122
false
The index is 7
The creator is Creator7
The year is 827
The movenent is expressionism
The condition is bad
The legth is 1293 cm
The width is 3021 cm
The technique is aquarelle
The surface is 3906153 sqcm
false
The index is 8
The creator is Creator8
The year is 633
The movenent is naturalism
The condition is good
The material is wood
The volume is 3994
false
The index is 9
The creator is Creator9
The year is 1164
The movenent is expressionism
The condition is good
The material is stone
The volume is 2768
false
The index is 10
The creator is Creator10
The year is 956
The movenent is impressionism
The condition is good
```

```
false
The index is 10
The creator is Creator10
The year is 956
The movenent is impressionism
The condition is good
The material is iron
The volume is 1117
true
The index is 11
The creator is Creator11
The year is 1231
The movenent is naturalism
The condition is excellent
The legth is 1821 cm
The width is 2968 cm
The technique is tempera
The surface is 5404728 sqcm
false
The index is 12
The creator is Creator12
The year is 2000
The movenent is impressionism
The condition is good
The legth is 3175 cm
The width is 2525 cm
The technique is tempera
The surface is 8016875 sqcm
true
The index is 13
The creator is Creator13
The year is 837
The movenent is impressionism
The condition is excellent
The legth is 1099 cm
The width is 2389 cm
The technique is aquarelle
The surface is 2625511 sqcm
true
The index is 14
The creator is Creator14
The year is 1154
The movenent is expressionism
The condition is bad
The legth is 2645 cm
The width is 2466 cm
The technique is aquarelle
The surface is 6522570 sqcm
false
```