Software-Projekt 1 | SoSe 2014 | Tim Ellhoff
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Übungsblatt 5

Lösungsvorschlag
27.07.2014

Aufgabe 1)

```
1  public abstract class Command{
2
3    protected char changedChar; // Wird in den Klassen Edit UND Del benötigt
4
5    public abstract void execute();
6    public abstract void undo();
7    public abstract void redo();
8
9  }
10
11 public class Edit extends Command{
12
13   public Edit(char c){
14     changedChar = c;
15   }
16
17   public void execute(){
18     TextBuffer.add(changedChar);
19   }
20
21   public void undo(){
22     TextBuffer.del();
23   }
24
25   public void redo(){
26     execute();
27   }
28
29 }
30
31 public class Del extends Command{
32
33   public void execute(){
34     changedChar = TextBuffer.del();
35   }
36
37   public void undo(){
38     TextBuffer.add(changedChar);
39   }
40
41   public void redo(){
42     execute();
43   }
44
45 }
```

Aufgabe 2) und Aufgabe 3)

```
1  public class InvalidArgumentException extends Throwable{};
2
3  public abstract class Medium{
4
```

```
5   private String titel;
6   private String verlag;
7   // --- Aufgabe 3 (section-start)
8   protected double rating;
9   protected int ratings;
10  // --- Aufgabe 3 (section-end)
11
12  public void setTitel(String titel){
13    if ( titel!=null & !titel.equals("") ){
14      this.titel = titel;
15    } else {
16      throw new InvalidArgumentException();
17    }
18  }
19
20  public void setVerlag(String verlag){
21    if ( verlag!=null & !verlag.equals("") ){
22      this.verlag = verlag;
23    } else {
24      throw new InvalidArgumentException();
25    }
26  }
27
28  public String getTitel(){
29    return titel;
30  }
31
32  public String getVerlag(){
33    return verlag;
34  }
35
36  // --- Aufgabe 3 (section-start)
37  public abstract void setRating( int rating );
38  public abstract double getRating();
39  // --- Aufgabe 3 (section-end)
40
41 }
42
43
44 public class Buch extends Medium{
45
46  private List<String> authors;
47  private Buchserie bookSet;
48
49  public Buch( String titel, String verlag, String author ){
50    setTitel(titel);
51    setVerlag(verlag);
52    if ( author!=null & !author.equals("") ){
53      this.authors.add(author);
54    } else {
55      throw new InvalidArgumentException();
56    }
57  }
58
59  public List<String> getAuthors(){
60    return authors;
61  }
62
63  public addAuthor( String author ){
64    if ( !authors.contains(author) ){
65      authors.add(author);
66    }
67  }
68
69  public delAuthor( String author ){
70    if ( authors.contains(author) ){
71      authors.remove(author);
72    }
73  }
74
75  public getBookSet(){
```

```
76      return bookSet;
77    }
78
79    public setBookSet( Buchserie bs ){
80      if ( !bs.getBooks.contains(this) ){
81        bs.getBooks.add(this);
82      }
83      bookSet = bs;
84    }
85
86    // --- Aufgabe 3 (section-start)
87    public void setRating( int rating ){
88      if ( rating>=1 & rating <=5 ){
89        this.rating = (this.rating*ratings+rating)/(++ratings);
90      } else {
91        throw new InvalidArgumentException();
92      }
93    }
94
95    public double getRating(){
96      return rating;
97    }
98    // --- Aufgabe 3 (section-end)
99
100 }
101
102 public class Buchserie extends Medium{
103
104   private List<Buch> books;
105
106   public Buchserie( String titel, String verlag, Buch firstBook ){
107     setTitel(titel);
108     setVerlag(verlag);
109     if ( firstBook!=null ){
110       this.books.add(firstBook);
111     } else {
112       throw new InvalidArgumentException();
113     }
114   }
115
116   public List<Buch> getBooks(){
117     return books;
118   }
119
120   // --- Aufgabe 3 (section-start)
121   public void setRating( int rating ){
122     if ( rating>=1 & rating <=5 ){
123       this.rating = (this.rating*ratings+rating)/(++ratings);
124     } else {
125       throw new InvalidArgumentException();
126     }
127   }
128
129   public double getRating(){
130     double averageRating = 0;
131
132     for ( Buch b: books ){
133       averageRating += b.getRating();
134     }
135     averageRating = averageRating / books.size();
136
137     return averageRating;
138   }
139   // --- Aufgabe 3 (section-end)
140
141 }
```

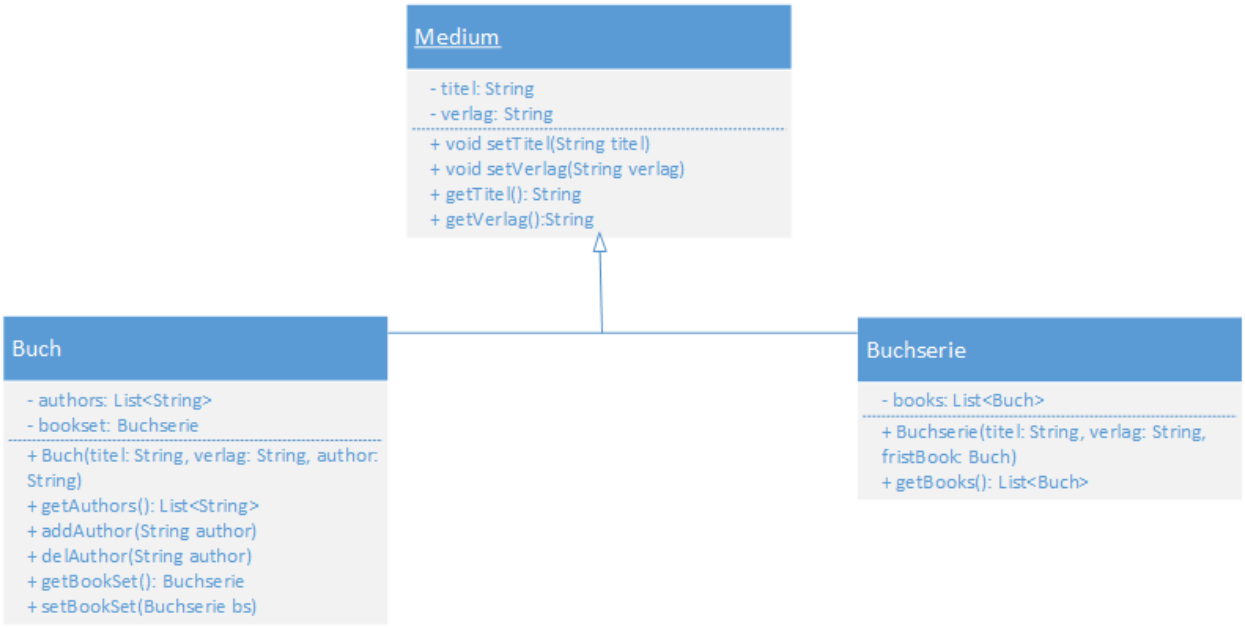

Abbildung 1: UML Klassendiagramm zum Sachverhalt in Aufgabe 2

Aufgabe 4)

Aufgabe 5)