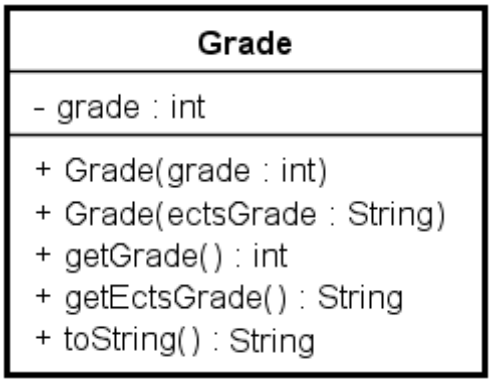
Exercise: Grade



The class `Grade` shown in the class diagram above represents a grade in the Danish 7-scale (i.e. either 12, 10, 7, 4, 2, 0, or -3). The equivalent grades in the international ECTS scale are: {A, B, C, D, E, Fx, F}.

The presented solution contains errors – Select all errors

```
1  public class Grade
2  {
3     private int grade;
4
5     public Grade(int grade)
6     {
7        grade = this.grade;
8
9        if (getEctsGrade() == "Illegal grade")
10       {
11          grade = -3;
12       }
13    }
14
15    public int getGrade()
16    {
17       return grade;
18    }
19
20    public String getEctsGrade()
21    {
22       String ects = "Illegal grade";
23       switch(grade)
24       {
25          case -3 : ects = "F";
26          case 0 : ects = "Fx";
27          case 2 : ects = "E";
28          case 4 : ects = "D";
29          case 7 : ects = "C";
30          case 10 : ects = "B";
31          case 12 : ects = "A";
32       }
33       return ects;
34    }
35
36    @Override public String toString()
37    {
38       return grade + " (" + getEctsGrade() + ")";
39    }
40 }
```

Select all errors (and afterwards fix the erors in your own Grade class)

- [ ] Line 1: Class name should have been in lower case: public class grade
- [ ] Line 4: An instance variable is missing (private String ects;)
- [ ] Line 5: The constructor should take the ects grade: public Grade(String ects)
- [ ] Line 7: Switch variables, i.e. this.grade = grade;
- [ ] Line 9: Use method equals when comparing Strings, and not operator ==
- [ ] Line 11: Update instance variable instead, i.e. this.grade = -3;
- [ ] Line 17: return this.grade because otherwise only a parameter variable is returned
- [ ] Line 20: Method getEctsGrade should be private
- [ ] Line 20: Method getEctsGrade should take the grade as argument: public String getEctsGrade(int grade)
- [ ] Line 22: Do not Initialise the variable, instead just: String ects;
- [ ] Line 25-30: Use a break in each case or alternatively, return the string in all cases
- [ ] Line 36: Change the method to a void method: public void toString()
- [ ] Line 40: A constructor is missing

Create a class `Grade` storing a grade (in the Danish 7-scale). The class has:

a) One instance variable of type `int` representing the grade in the Danish 7-scale.
b) A constructor taking an integer representing the grade in the Danish 7-scale. If the argument is not a legal grade then store -3 in the instance variable.
c) A constructor taking a string representing the ECTS grade, i.e. one of the following: {"`A`", "`B`", "`C`", "`D`", "`E`", "`Fx`", "`F`"}. Convert the ECTS grade to the equivalent Danish 7-scale to store in the instance variable. If the input is not a legal ECTS grade then store -3 in the instance variable.
d) A method `getGrade` returning the grade (in the Danish 7-scale).
e) A method `getEctsGrade` converting the grade into the equivalent ECTS grade and return this.

f) A method `toString` returning a sting with the grade both in the Danish 7-scale and in the international ECTS scale.