

## i Egenerklæring/ declaration

### Declaration

I hereby declare that the assignment which I am submitting is my own work, and that

- it has not been used in another examination or been submitted or published at another educational institution in Norway or abroad
- it does not contain other people's work without this being stated
- it does not contain my own previous work without this being stated

### Egenerklæring

**I am aware that any violation of these rules will be considered cheating.**

If you are uncertain about whether you can submit this declaration, check the guidelines for [The use of sources in written works at the University of Bergen](#) and contact your supervisor or the lecturer, if relevant.

All work you submit at the University of Bergen may be sent for an electronic plagiarism check.

**Note: Submitting assignments that do not meet the requirements in the personal statement is not permitted.**

By continuing, I confirm that I have read the declaration and that the work which I submit during this exam is my own work (and only my own work), fully in compliance with the above stated regulations.

## i Kontaktinformation/ contact information

The responsible teacher of INF101 is Martin Vatshelle, if you need any clarifications related to the tasks please contact either vis personal message in Mitt UiB or:

E-mail: [Martin.Vatshelle@uib.no](mailto:Martin.Vatshelle@uib.no)

Phone: 91836584

If you have general questions related to the exam, practical problems, pproblems with logging in or other problems with the system please contact studieveileder. There are 2 different channels to do so:

- By email: [studieveileder@ii.uib.no](mailto:studieveileder@ii.uib.no)
  1. In the subject field write the course code of the exam (INF101 - exam)
  2. In the email itself, write your candidate number AND student number
  3. Describe briefly your problem
- By phone in this order:
  1. 55 58 41 82 - Mo Yan Yuen
  2. 55 58 41 59 - Eirik R. Thorsheim

When you contact us in the studyadministration (either by mail/ phone) we ask you to:

1. Have you candidate number ready (3 digits, can be found in Inpera or in studentweb)
2. Have your student number ready (6 digits, can be found on your UiB student card)
3. Your contact info (phone & email) if we need to refer your case further.

For general exam questions, the faculty has made a FAQ on exams: <https://www.uib.no/en/matnat/54860/examinations#corona-and-exams-nbsp-faq>

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# Intro

This exam contains 6 tasks, mainly programming, but also some theory.  
You may use internet and books as aids, but it is not allowed to discuss with others.

All programming shall be don in in the programming language Java, it may pay off to code using an editor meant for Java programming, but it is up to you which editor you use.  
The programming tasks contains some code which you shall complete/fix.

The tasks gives up to 70 points in addition you can get up to 30 points from compulsory assignments giving a total of 100 points, it is not determined which limits you need to reach the different grades, but normally 40 points are needed to pass.  
It can be quite challenging to achieve 14 out of 14 points on a task but might be easy to achieve 10 out of 14, therefore you should at least try to solve all questions.

Good luck!

1

# SchoolClass

For this task you shall implement a school class. The school class consists of students which are either boys or girls. The methods you shall implement are described in the interface [ISchoolClass.java](#)  
Students are described by the type [Student.java](#)

Fill in your answer here

1

Maximum marks: 14

2 **myName**

Often one need to store a persons name, this can be done in several ways. In the previous task we stored the name as a String which could look something like this:

```
String myStringName = "Martin Vatshelle";
```

Another way is to define a class Name and store the name as an Object. Then my name might look like this:

```
Name myObjectName = new Name("Martin Vatshelle");
```

What the best way to store a name is, depends often on the situation and the rest of the program, but when we think about readability, future extensions and the other concepts covered in INF101 there are many good reasons to choose Objects of the type Name.

Describe 2 situations where you think it is best to use Objects of the type Name and explain why.

**Fill in your answer here**

Maximum marks: 7

3 **static**

What is the meaning of the static keyword which often is used in for variables and methods?

In addition to explaining, give an example which uses the keyword static with a reasoning why it is wise to use static in this case.

**Fill in your answer here**

Maximum marks: 7

4    **StudentCatalogue**

As an extension to the program in the task SchoolClass the lecturer has made a class to keep track of which students are in the classes INF101 og INF102. The class has methods to add and remove students as well as checking whether a student is taking a certain course. Students can be in one, both or none of the courses.

Also 5 JUnit tests has been made, but 3 of these tests fails, can you figure out what is wrong?

Describe first what is wrong, then fix the code such that all JUnit tests pass.

- [Student.java](#)
- [StudentCatalogue.java](#)
- [StudentCatalogueTest.java](#)

Fill in your answer here

1	
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Maximum marks: 14

5    **Scrabble2**

In the game Scrabble each player is given some letters and the goal of the game is to arrange your letters into valid words which can be found in the dictionary.  
An implementation of the Scrabble game has already been started.  
Now you shall implement the following 2 methods:

```
public boolean canWrite(String word)

public String longestWord(String letters)
```

The partial code can be found in the file [Scrabble.java](#), there you can also find detailed comments explaining carefully what each method should do.  
**Fill in your answer here**

1	
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Maximum marks: 14

6 **MusicSorter**

You shall make make your own music library and have already made a class called Song which among other things stores information about artist name and release date. Now you need code to sort the songs in different ways.

You shall implement the following 2 methods:

```
/**
 * Sorts the list according to the alphabetic order of Song::getArtistName()
 * @param music - the list of songs to be sorted
 */
public static void sortByArtist(List<Song> music) {
    //TODO: implement this
}

/**
 * Sorts the list according to the Date of Song::getReleaseDate()
 * @param music - the list of songs to be sorted
 */
public static void sortByReleaseDate(List<Song> music) {
    //TODO: implement this
}
```

[Song.java](#)  
[MusicSorter.java](#)  
**Fill in your answer here**

1	
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Maximum marks: 14

7 **Poeng fra Semesteroppgavene**

On this task you shall not do anything. Here you will be awarded points based on the compulsory assignments you handed in.

You are now done with this exam :-)

Best regards  
Martin

**Write a nice greeting to your lecturer.**

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Maximum marks: 30