

EDAF35 Examination

Preparation

2020

EDAF35 Examination Overview

- Type: home exam (alone in the room!)
- Maximum points: 60
- Preliminary grading: >35 pts. to pass (45+ for 4, 55+ for 5)-ish
- Help YES: textbook, software located on your PC
NO: internet (except exam/course site), friends, colleagues
- Date: June 5, Friday
- Time: 4h, 2pm-6pm, CET
- Catch: assignments are randomly generated and individual!

EDAF35 Examination Type of Questions

- A. Describe/compare/discuss alternatives (advantages/drawbacks)
- B. Apply strategies, algorithms to instances (compute things)
- C. Sketch code solution, explain or improve given code for certain behavior (write code, draw figures)

Will **not** ask you to:

- Define/explain single terms (easy to look them up)
- Write complete functional code (takes too long)
- Know names (of people/systems), years, versions, syntax, man pages,...

A. Define/compare/discuss alternatives

- Medium-long answer: no more than 1 A4 page, no less than 1/2 page
- About 3-4 such questions
- 5-6 pts each
- Examples:
 - Compare directory structures: flat vs. two-level vs. acyclic graph
 - Compare hashed page tables vs. inverted page tables
 - Discuss types of locks and their use on single and multi-processors
 - Compare user threads vs. kernel threads and discuss one-to-one, many-to-one, many-to-many scheduling strategies

B. Apply methods to instances

- Numerical/visual answer: around 1-2 A4 pages (EXPLAIN what you did)
- Probably 2 such problems, divided in 3-5 subquestions
- Up to 15 pts. Computations needed!
- Example:
 - Given demand paging with 4 frames and a LRU page replacement strategy, the following page sequence is requested: 1 3 2 1 2 4 1 3 2 4 1 3 2 4 1 2
 - a. Show the frames contents after each access and count the page faults
 - b. Compare this to the optimal replacement strategy
 - Given a FS with 1Kb blocks, 16b wide addresses, indexed allocation scheme with (mixed) 10 direct and 1 single indirection: compute the max. file size, etc.

C. Sketch solution or improve given code

- Write relevant or change a few code lines
- Draw diagrams explaining certain structures or states
- Maybe 1 such problem

- around 10 pts

- (toy) Example:

- 1.Explain the issues with this code. Correct it.
- 2.Write code creating five processes executing various things.

```
pthread_mutex_t proc_info_lock =  
PTHREAD_MUTEX_INITIALIZER;
```

Thread 1:

```
if (thd->proc_info) {  
... pthread_mutex_lock(&proc_info_lock);  
fputs(thd->proc_info, ...);  
pthread_mutex_unlock(&proc_info_lock); ...  
}
```

```
Thread 2: pthread_mutex_lock(&proc_info_lock);  
thd->proc_info = NULL;  
pthread_mutex_unlock(&proc_info_lock);
```

EDAF35 Examination Technical Details (1 of 2)

- Before start (minutes): receive an email from me with a link to a server where you can download your assignment and upload your solutions
- The link will only be accessible for the duration of the exam
- download the assignment (PDF)
- sign the pledge (academic integrity): on paper or PDF
- your solutions should be PDF: e.g. write on paper and scan with [Microsoft Office Lens](#) (train using this before!)
- merge your solution with the signed pledge in ONE PDF
(I will not grade submissions without the signature!)

EDAF35 Examination Technical Details (2 of 2)

- Upload the PDF using the menu at the given link
 - you may do this at most 5 times, with files no larger than 16MB
- If this fails, send me your solutions by email (before 18:00!)
(I cannot guarantee large files will be allowed by the mail system)
- For other issues or clarifications do the following:
 - 1.send me an email (to get my attention)
 - 2.join the [course Zoom room for the labs!](#)
(I will be here from 14:00-14:30, and when you have questions - allow me 10-15 min to notice your request)

Sample Front Page

Exam in Operating Systems (EDAF35)
2020-06-05 14:00-18:00
(generated with code 756GFDA)

Examiner: Flavius Gruian, tel 0733638203

40p out of 60p are needed to pass the exam.
You may answer in English/på svenska.

Instructions

Please read and sign (either by hand or by using e.g. Adobe Reader) the integrity pledge below before you begin the exam. By signing, you are indicating adherence to honesty and integrity during the exam process and declaring that the information within this exam is derived from your own independent thoughts and effort. Attach this document with the signed pledge to your own scanned pages and submit it as agreed. Exams submitted without the signed pledge will not be graded.

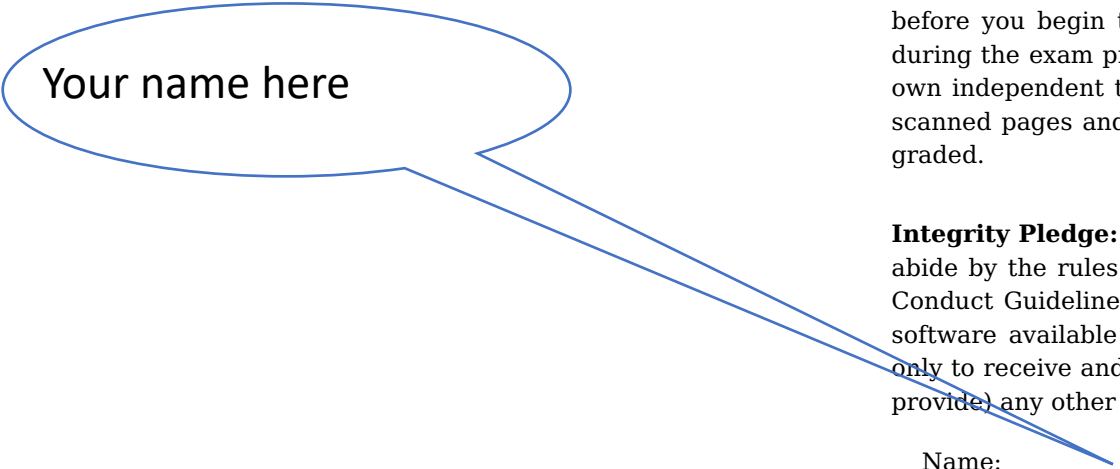
Integrity Pledge: I pledge to uphold the highest standards of ethics and academic integrity. I will abide by the rules my instructor has provided for this exam and will not violate LTH's Academic Conduct Guidelines. This means that I will only use my course notes/readings, the textbook and software available on my computer. Connectivity software or support may be downloaded/used only to receive and submit the assignment from/to the instructor designated site; I will not use (or provide) any other outside assistance (no internet or other people including my peers).

Name: _____

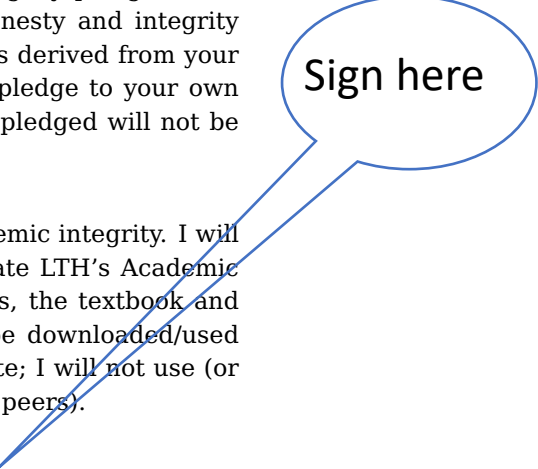
Signature: _____

Exam Assignments Start Here

1. (max 20p) Compare/discuss in your own words the following topics. Use examples if they help your explanation. Aim for one page long answers.



Your name here



Sign here

Good Luck!