

i Forside

UNIVERSITY OF OSLO

The Faculty of Mathematics and Natural Sciences

Written examination DIGHEL4360

2024 AUTUMN

Duration: November 28, 15:00-19:00

Permitted aids: None

It is important that you read this front page before you start. If you need to use the zoom function exam set you can hold down ctrl and click + or - on the numerical keyboard.

1 Programming 1

Fill in your answer here

Format

B

I

U

$\times_2$

$\times^2$

$\int_x$

















































Words: 0

Maximum marks: 12

4 Konfidensialitet

One important security goal in information security is confidentiality of data. Pick an example from your daily (digital) life where confidentiality is important. Explain what might happen if an attacker could get access to the confidential data

Fill in your answer here

Format | **B** | *I* | U | $\times_2$ | $\times^2$ | I_x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

5 Autentisering

Authentication

Mark the statement(s) about authentication that are true.

Select one or more alternatives (wrong answers will count negatively):

- ☐ Using a password management tool for storing passwords is highly recommended
- ☐ With federated identity, the user needs to remember fewer passwords
- ☐ Longer passwords help to protect against phishing
- ☐ Passwords are usually combined with “salt” and stored as a hash
- ☐ SMS-based authentication is a typical example of knowledge factor.

Maximum marks: 3

6 Sporing av epost

Please explain image-based email tracking.

- a) What is the purpose of tracking email users?
- b) How does it work?
- c) How can it be avoided?

Fill in your answer here

Format
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Words: 0

Maximum marks: 3

7 TLS

You are visiting the Web page <https://www.online-shop.com.trick-me.no/> (i.e., you are using TLS). No warning is shown by the browser and the connection is marked as secure. Mark the statement(s) that are true.

Select one or more alternatives:

- ☐ The connection is guaranteed with the host [www.online-shop.com](https://www.online-shop.com.trick-me.no/)
- ☐ The Web page could be a phishing page.
- ☐ The Web page is guaranteed not to be a phishing page.
- ☐ If you enter your credit card number on the Web page, an adversary eavesdropping on the wire can see it

Maximum marks: 3

8 Sertifikater

Please mark the statement(s) about certificates that are true

Select one or more alternatives:

- ☐ Popular websites do not need certificates, because they are trusted implicitly
- ☐ Certificates are generated by the web server
- ☐ A browser accepts certificates issued and signed by preconfigured certificate authorities
- ☐ Certificates aim to verify the authenticity of a web server's public key

Maximum marks: 3

9 Cookies

Mark the statement(s) about HTTP cookies that are true

Select one or more alternatives:

- ☐ In a session stealing attack, a user's cookie is stolen
- ☐ Cookies are used in connection with authentication
- ☐ Cookies are required for reading Wikipedia articles
- ☐ Cookies are required because the HTTP protocol is a stateful protocol
- ☐ Third-party cookies are often used by advertisement networks

Maximum marks: 3

10 Systemutvikling 1

What is the difference between agile development and development following a waterfall model? What are potential benefits and drawbacks for each of them?

Max 500 words

Fill in your answer here

Format

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U

$\times_2$

$\times^2$

$\frac{I}{x}$











































11 Systemutvikling 2

Project Organization

What are the advantages and challenges of organizing activities in IT and digitalization as projects? What can be done to potentially address the challenges?

Maximum 500 words

Fill in your answer here

Format

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Σ



Words: 0

Maximum marks: 15

Question 1

Attached



~/UiO/DIGHEL4360/2024/eksamen/eksamen_prog.md

Eksamensoppgave - programmeringsdel

Oppgave 1

Vi skal nå se på et lite Python-program som kan brukes for å lagre og skrive ut en pasients navn og medisiner.

```
patient_name = input("Tast inn pasientens navn: ")
patient_medication = []

new_med = input("Tast første medikament: ")
while new_med != "STOPP":
    patient_medication.append(new_med)
    new_med = input("Tast neste medikament eller 'STOPP': ")

print("Pasienten", patient_name, "tar følgende medisin:", patient_medication)
```

Oppgave 1a

I programmet benyttes funksjonen `input`. Beskriv med noen få ord hva denne funksjonen gjør.

Oppgave 2b

I programmet benyttes en `while`-løkke. Hvorfor er det gunstig å benytte denne typen løkke i dette tilfellet, og ikke en `for`-løkke?

Oppgave 2c

Programmet ber om første medikament *før* `while`-løkken. Hvorfor har programmereren valgt å gjøre det slik?

Oppgave 2

I programmet fra oppgave 1 printes verdiene fra variablene direkte i terminalen. I noen tilfeller ville det vært praktisk å skrive pasientens navn og medisiner til en fil i stedet. Skriv kode som lagrer dataen i en fil som heter `pasientdata.txt`. Du kan anta at din kode kommer umiddelbart etter koden i programmet fra oppgave 1. Utskriften til fil skal se slik ut:

```
Pasientens navn
Medikament 1
Medikament 2
```

Medikament 3

<eventuelt flere medikamenter...>

Oppgave 3

Nå som vi har pasientdata lagret til fil, er det ønskelig å ha et program som kan lese inn data fra filer, slik at vi slipper å taste inn dataene på nytt hver gang vi kjører programmet. Skriv et program som:

1. Ber om et filnavn som input.
2. Åpner filen med dette navnet slik at vi kan lese fra den.
3. Leser inn pasientens navn fra første linje i filen og lagrer i en variabel.
4. Leser alle medikamenter (linje 2 og ut filen) og lagrer disse i en liste.
5. Printer navn på pasienten og medikamentene denne tar.

Du kan anta at filen eksisterer, og at den er på samme format som i oppgave 2, dvs. at pasientens navn er på første linje, umiddelbart etterfulgt av navn på medikamenter.