

UNIVERSITY OF BERGEN
DEPARTMENT OF INFORMATICS

Game based learning

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UNIVERSITETET I BERGEN
Det matematisk-naturvitenskapelige fakultet

April, 2023

Abstract

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Acknowledgements

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Chapter 1

Algorithmic thinking

1.1 What differs algorithmic thinking from other subjects?

1.2 The cognitive process of learning programming

1.3 Educational barriers

1.3.1 Teaching various concepts in parallel

Chapter 2

Didactic models

2.1 The didactic triangle

2.2 Semiotic ladder

2.3 Cognitive objectives taxonomy

2.4 The ADRI model

Chapter 3

Discussion of didactic models and their practice

Chapter 4

Game based learning

4.1 What is game based learning?

4.2 What previously introduced concepts and didactic models are reinforced by using game based learning?

Chapter 5

Introduction

5.1 Hedy: A Gradual Language for Programming Education

5.1.1 Hedy: Motivation

5.1.2 Hedy: Pros/Cons

5.2 Ex2:

5.2.1 Ex2 Motivation

5.2.2 Ex2 Pros Cons

5.3 Ex3:

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5.3.2 Ex3 Pros Cons

Chapter 6

My approach to teaching programming

6.1 What models do I follow?

6.2 What concepts do I focus on?

6.3 How do I simplify the cognitive process of learning these concepts?

Chapter 7

- MY APPLICATION -

7.1 Motivation

7.2 Design

7.3

Chapter 8

Introduction

Natum mucius vim id. Tota detracto ei sed, id sumo sapientem sed. Vim in nostro latine gloriatur, cetero vocent vim id. Erat sanctus eam te, nec assueverit necessitatibus ex, id delectus fabellas has.

Lorem ipsum dolor sit amet, iisque feugait quo eu, sed vocent commodo aliquid an. Minim suavitate dissentiet te eos. Dicunt eirmod adolescens no sed. Esse nonumy melius an mel, mei ut maiorum luptatum. Eu eum iudico scripta, movet option assueverit mel ex, mea at odio noluisse efficiendi. Ad vidisse atomorum conceptam quo, saepe volumus philosophia eos eu, delenit conceptam no usu.

Vituperata sadipscing deterruisset ei mel, at qui nonumy blandit. Delectus dissentiet et sea, ut rebum regione numquam nam, cum ex augue constituto. Te per nihil semper. Posse voluptatum qui an, aliquando democritum disputando id quo, everti perpetua cu vim. Laudem fabellas mei an, eu reprimique quaerendum usu. Quidam prompta fabellas ne est.

8.1 Background

Lorem ipsum dolor sit amet, cu graecis propriae sea. Eam feugiat docendi an, ei scripta blandit pri. Nonumes delicata reprimique nam ut. Eu suas alterum concludaturque est, ferri mucius sensibus id sed [1].

We can do glossary for acronymes and abriviations also: Software as a Service (SaaS). As you see the first time it is used, the full version is used, but the second time we use SaaS the short form is used. It is also a link to the lookup.

8.1.1 Listings

You can do listings, like in Listing 10.1

Listing 8.1: Look at this cool listing. Find the rest in Appendix A.1

```
1 $ java -jar myAwesomeCode.jar
```

You can also do language highlighting for instance with Golang: And in line 6 of Listing 10.2 you can see that we can ref to lines in listings.

Listing 8.2: Hello world in Golang

```
1 package main
2
3 import "fmt"
4
5 func main() {
6     fmt.Println("hello world")
7 }
```

8.1.2 Figures

Example of a centred figure

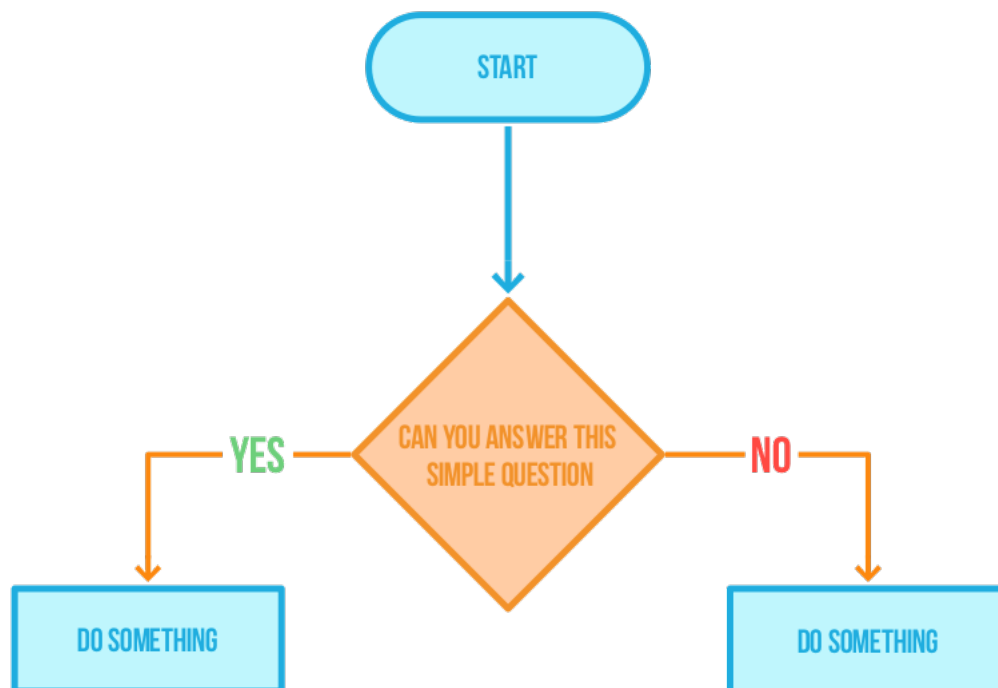


Figure 8.1: Caption for flowchart

Credit: Acme company makes everything <https://acme.com/>

8.1.3 Tables

We can also do tables. Protip: use <https://www.tablesgenerator.com/> for generating tables.

Table 8.1: Caption of table

Title1	Title2	Title3
data1	data2	data3

8.1.4 Git

Git is fun, use it!

Chapter 9

Conclusion

Chapter 10

Introduction

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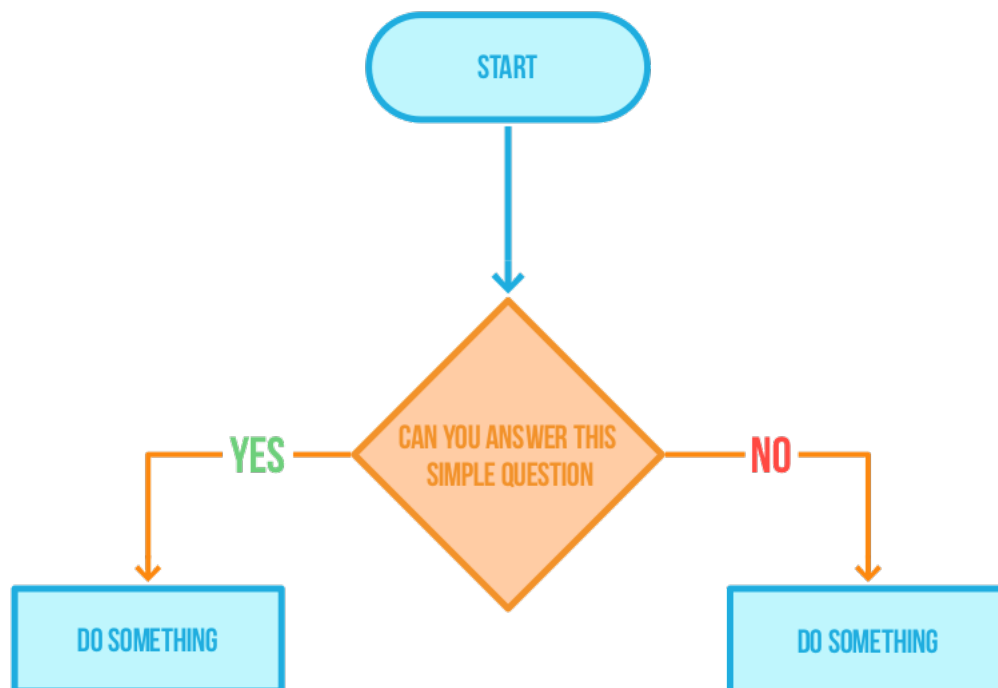


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10.1.4 Git

Git is fun, use it!

Glossary

Git Git is a Version Control System (VCS) for tracking changes in computer files and coordinating work on those files among multiple people.

List of Acronyms and Abbreviations

SaaS Software as a Service.

VCS Version Control System.

Bibliography

- [1] Diego Ongaro and John Ousterhout. In search of an understandable consensus algorithm. In *Proceedings of the 2014 USENIX Conference on USENIX Annual Technical Conference*, USENIX ATC'14, pages 305–320, Berkeley, CA, USA, 2014. USENIX Association. ISBN 978-1-931971-10-2.

Appendix A

Generated code from Protocol buffers

Listing A.1: Source code of something

```
1 System.out.println("Hello Mars");
```