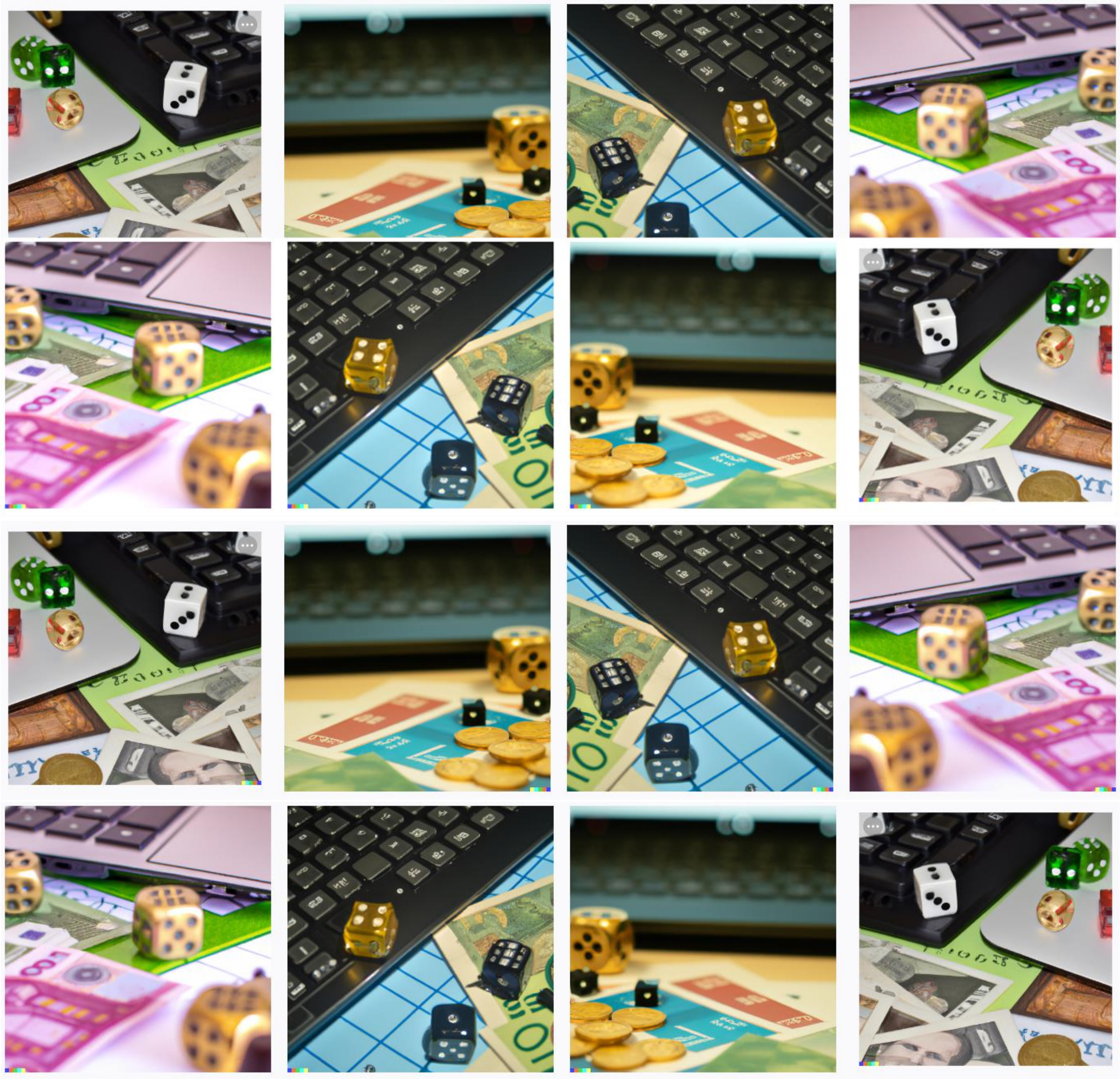
CHALLENGE 2.1

BOARD GAME – TUBOGA



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COURSE DESCRIPTION

Course name:	Basecamp 2, Challenge 1
Course code:	INFBCC02-1
ECTS:	1 ECTS
Study points and workload:	This elective provides you with 1 study point (EC). The study workload is at least 28 hours during Challenge Week.
Prior knowledge:	The challenge is a logical continuation of the program in Basecamp. The level of the challenge is aligned to Basecamp's program of Arch 1.
Working method:	Students work during Challenge Week in a team of 2 students. Students work independently on location and online. Teachers and peer coaches will be available for support.
Testing:	A working board game in Python that meets the minimal requirements and is presented in class. A minimum effort of 28 hours per person is expected. Students keep a logbook for this purpose.
Learning materials:	All Basecamp material, online content.
Content:	Students will create a board game in Python, covering at least the concepts in Arch 1.
Notes:	Although there are minimum requirements, creativity is stimulated!
Course coordinator:	Xenia Hasker, John Grobben
Date:	1 September 2023

1. Introduction

Week 4 is designed as a flexible week. If everything is going well, you will do this challenge assignment. If you experience difficulties, you can use this week to get back on track. ‘Back on track’ is described in another document. The challenge is to make a board game.

2. The challenge

If everything is OK so far you can pick up the gauntlet with a challenge. Read the next sections carefully before you start. We will give you the assignment, tips and some minimal requirements.

Challenge: make a board game

In this Challenge you develop TUBOGA: The Ultimate BOard GAme. It is a mixture of ganzebord, monopoly, snakes & ladders, triviant and catan.

If you are not really a board game person look at the resources for more information.

It is possible to make such a game with basic Python, but if you are already more experienced you are free to use lists, dicts, functions, classes and so on. Pygame is permitted for the ambitious….

We provided some ideas for the game, but using your own creativity is permitted of course. Look at “minimal requirements” and “extension ideas”.

As you know ChatGPT is hot these days, so we have added an “AI” component to this challenge.
NOTE: for ChatGPT you have to make an account at OpenAI. If you don’t want this it’s OK. There are other ways to find information and create questions, good old Wikipedia for example.

Goal

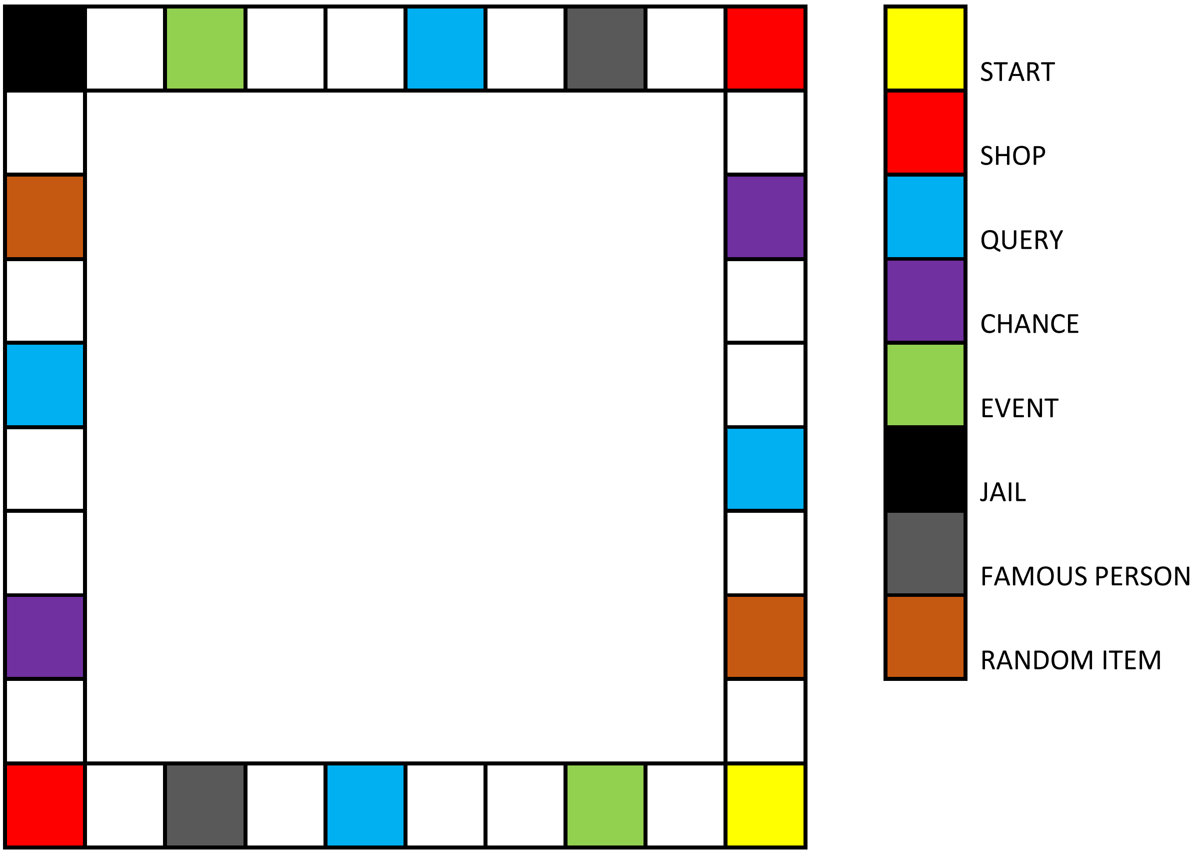
The goal of the game is to get rich by selling computers.

General description

Two players play a turn based game on a board with shops, queries, chances, events, famous persons and of course a jail. They collect money, trade, buy computer components and answer multiple choice questions.

Layout

The layout of the board has a monopoly-look. Here is an example:



Computer parts

You can make a computer if you have collected:

- A keyboard
- A mouse
- A monitor
- A printer
- A CPU
- A GPU
- A motherboard
- A Mini Tower

These parts have different prizes in the two SHOPS.

On the RANDOM ITEM fields you get a random item. So it is possible that you end up with 15 mouses!

Theme

We have chosen for the ICT theme, but you are free to do something special:

- F1 racing theme
- Mountaineering theme
- Football theme
- Fashion theme
- …

Quizzes

On the QUERY and FAMOUS PERSON fields the player gets a multiple choice query about the theme. She earns money if the answer is correct.

We have a suggestion to make quizzes: use ChatGPT!

Other special fields

We give some examples of special fields:

- Taxes (pay 10% of your money for example)
- Chances (you win the lottery for example)
- Casino
- Community chest (for both players: black Friday, sales, crash of the stock market, …)

Rules

- There are two players starting at START, direction is clockwise
- Each turn they throw 2 dices, their capital increases with the product of the two dices
- The first player with 5000 florins wins the game
- In the shop they can buy 1 item per visit
- If they have collected a complete set (depending on theme) they can sell it in a shop or to a famous person

Tips

- Don’t build everything at once, start with a board, a player and a die
- Add features and repeat
- Make a mockup

ChatGPT

We encourage you to experiment with ChatGPT while designing the game. Examples:

Q: make 5 multiple choice questions about programming in python

1. What is the proper way to define a function in Python?
   a. function my_func():
   b. def my_func():
   c. function: my_func()
2. What is the output of the following code? print(type(3/2))
   a. int
   b. float
   c. str
3. How do you create a dictionary in Python?
   a. dict = {key: value}
   b. {key: value} = dict
   c. dict = {"key": "value"}
4. What is the correct way to access an element in a list in Python?
   a. list[index]
   b. list(index)
   c. list{index}
5. What is the use of the 'break' statement in a for loop in Python?
   a. Skip the current iteration and move to the next iteration
   b. End the for loop immediately
   c. Continue to the next iteration and skip the rest of the code in the current iteration

Q: and the answers?

1. b. def my_func():
2. b. float
3. c. dict = {"key": "value"}
4. a. list[index]
5. b. End the for loop immediately

You can even use it like this:

Q: Make a python routine that simulates two dice

A: Here is a simple routine that simulates two dice using the random module in Python:

```
import random
```

```
def roll_dice():
    die1 = random.randint(1, 6)
    die2 = random.randint(1, 6)
    return (die1, die2)
print(roll_dice())
```

This function uses the random.randint function to generate random integers between 1 and 6 (inclusive), which represent the values on the dice. The function returns a tuple with the values of the two dice. When you run this code, you will get a random outcome each time you call the roll_dice function.

But be careful!

Q: name five statues in Rotterdam

A: Here are five statues in Rotterdam, Netherlands:

The Liquid Spider by Florentijn Hofman, located near the Eendrachtsplein

The Red Light Secrets by Jurjen Drenth, located near the Red Light District

The Friendship Statue by Jin-me Yoon, located in the Plaza at the Library

The Chicken by Erwin Wurm, located near the Kunsthal museum

The Mother and Child by Carla Kok, located in the Park at the Kralingse Plas.

Try to find them ……

3. Resources

https://nl.wikipedia.org/wiki/Ganzenbord

https://nl.wikipedia.org/wiki/Monopoly

https://en.wikipedia.org/wiki/Snakes_and_ladders

https://nl.wikipedia.org/wiki/Trivial_Pursuit

https://nl.wikipedia.org/wiki/Catan

https://openai.com/blog/chatgpt/

4. Minimal requirements:

A board game with:

- Dice
- Two players
- Money, buying, selling

- Multiple choice questions
- Collecting components of a computer or other things to collect
- Simple print of the board
- Special fields

Extra (if you are more experienced):

- A computer player
- Different routes on the board (adds strategy)
- Use PyGame (graphics!)

If you finish this challenge satisfactory you get 1EC (study point) for the elective (keuzevak) Basecamp Challenge 2.1.

5. Planning

- Week 3 decision challenge or back to track, make plan for “back on track” or read this challenge document.
- Week 4: working on challenge or back on track, visit guest lecture, feedback session, handing in
- Week 5: showing products to teachers (and other students)

6. Deliverables

You work in teams of 2 students and the deliverables are:

- Source code
- Working game, made with Python
- Hour registration (for each member of the team - we expect you to work at least 28 hours on your back on track challenge) – **use this format**
- Demonstration (week 5, in class)
- Hand in in Codegrade: A1W4C1 - Challenge week 1 (**as a zip-file**)

7. Deadline

- Deadline classes BC21A to BC21D: Sunday 10 March before 23.59
- Deadline classes BC21E to BC21G: Monday 11 March before 23.59
- Too late is no credit!

8. Grading

The challenge is a team effort, to which the students contribute individually. The grade is on an individual base. To qualify for a passing grade for this challenge, you must meet the following prerequisites and requirements:

Prerequisites	Fulfilled	Not fulfilled
Delivery before deadline		
Proof minimum investment of 28 hours (by logbook)		
Learning goal	Weight factor	Taxonomy (Miller)
You develop a board game in Python that meets the minimum requirements as described in this document.	100%	Knows how/Shows how
Pass mark (cesuur): the prerequisites must be fulfilled, the game must meet the minimum requirements in order to receive a ‘VLD’ (voldaan).		

All students who subscribed to this challenge, will be graded with a ‘VLD’ (voldaan/fulfilled) or ‘NVL’ (niet voldaan/not fulfilled).

9. Retake

All students with ‘NVL’ are eligible for a resit. The resit is in consultation with the Basecamp teachers and will take place within Basecamp.

Use your creativity and enjoy!!!