HEDY

Textual programming made easy!

Femke Weijsenfeld – FOSDEM 2026

TEXTUAL PROGRAMMING

Python error messages

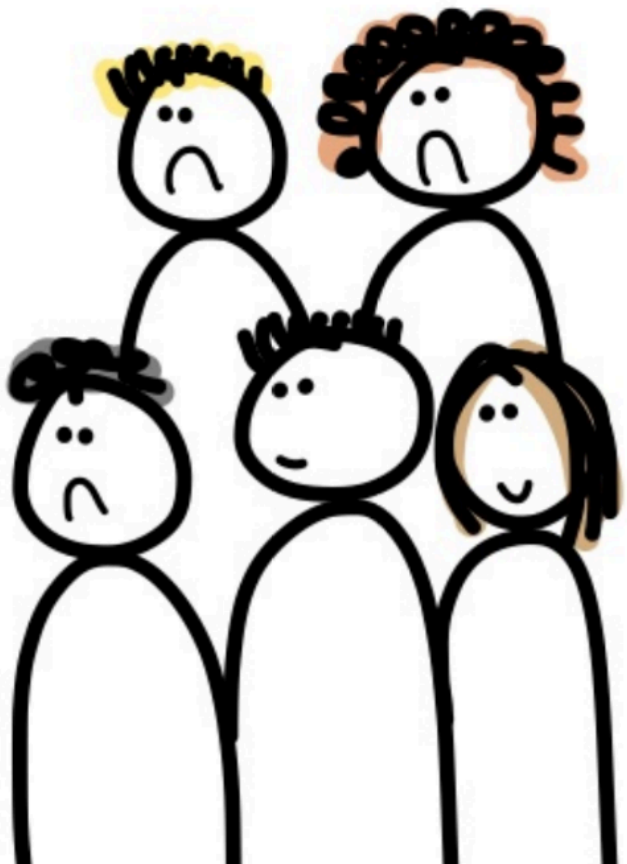
SyntaxError: unterminated string literal (detected at line 1)

IndentationError: unexpected indent

UnboundLocalError: local variable ‘x’ referenced before assignment

TypeError: ‘NoneType’ object is not subscriptable

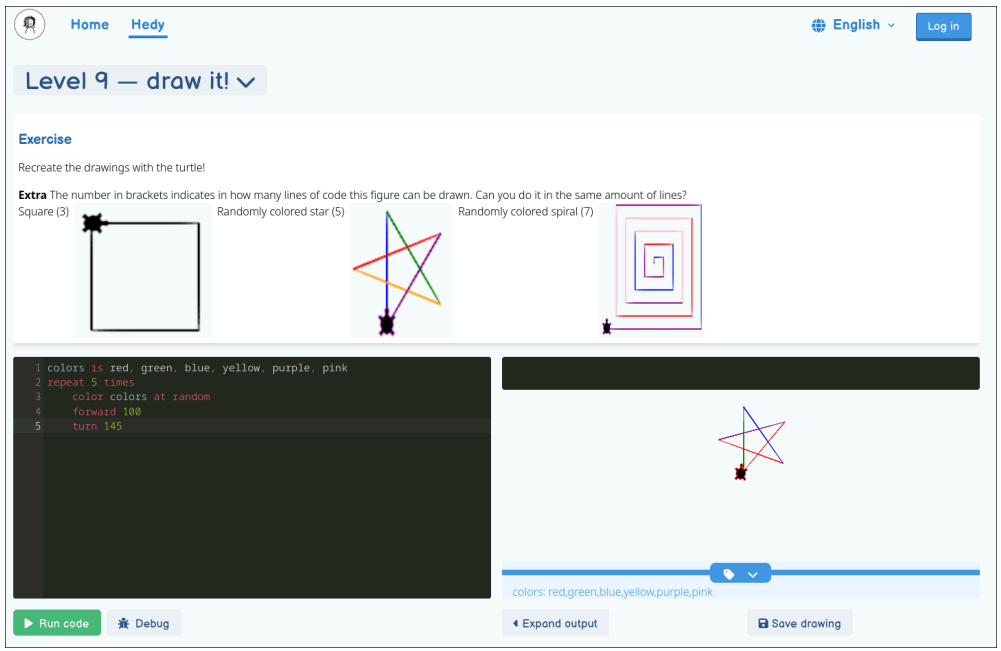
Python error messages



TEXTUAL PROGRAMMING MADE EASY

Meet Hedy!

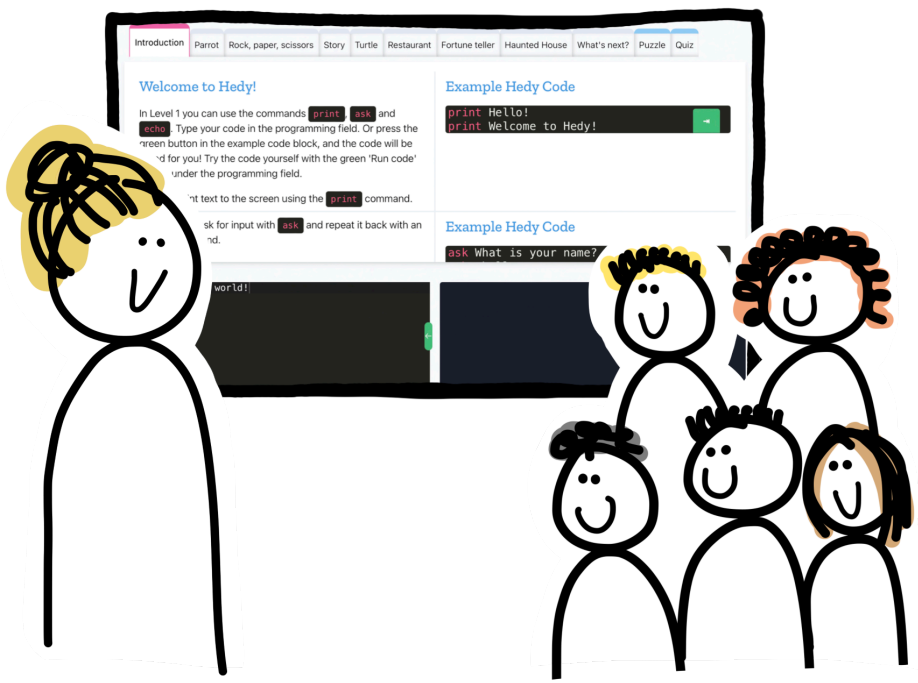
- Hedy is a turing complete language
- Including teacher interface
- Available in the browser



Gradual syntax approach

- Teaching children syntax just like learning punctuation
- Gradually learning syntax and concepts

(Gilsing and Hermans, 2021; Hermans, 2020)



Gradual syntax approach

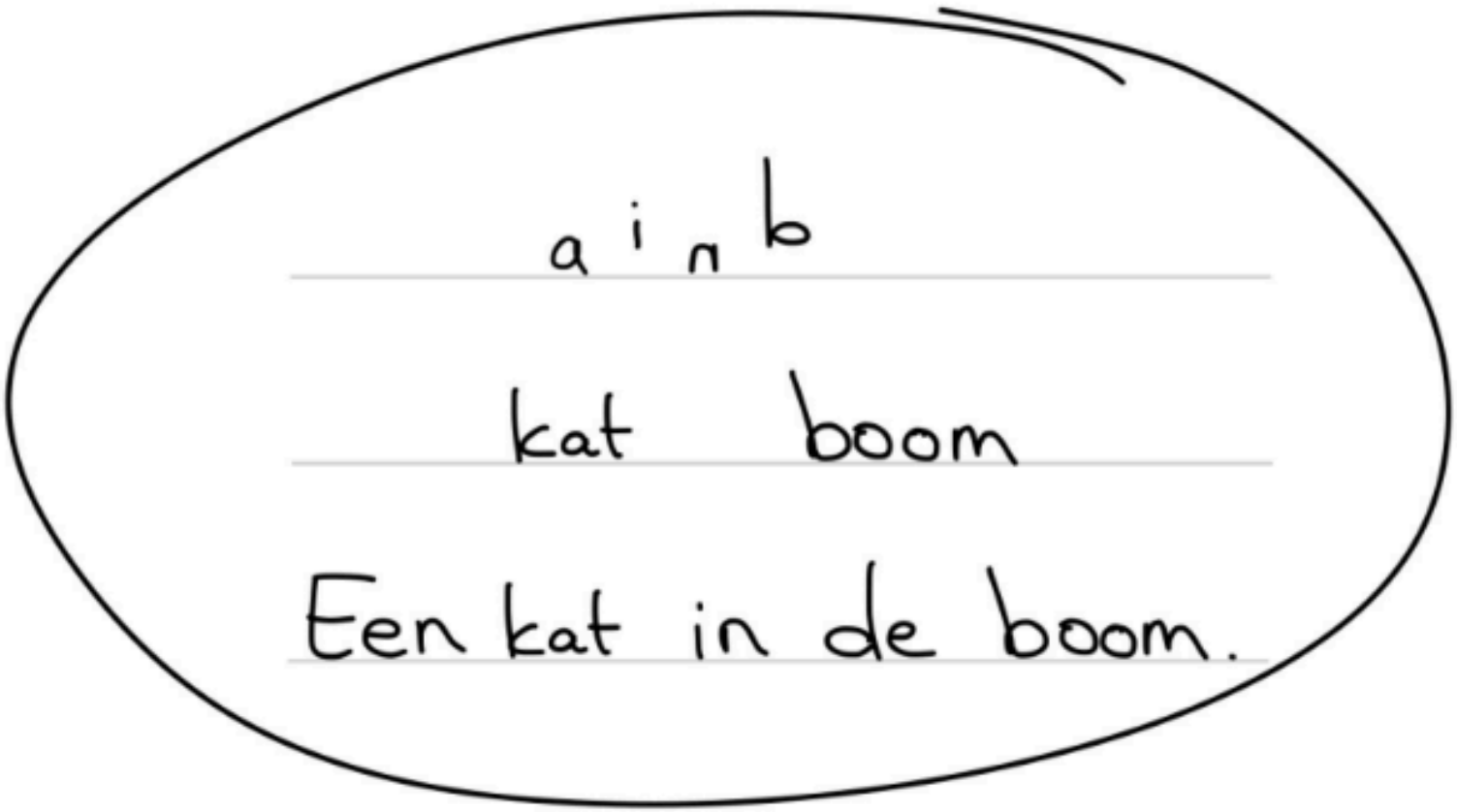


Figure 5: How students learn to write

Gradual syntax approach

Syntax in level 3:

Hedy

```
1 choices is stone, paper, scissors
2 print I choose choices at random
```

Syntax in level 16:

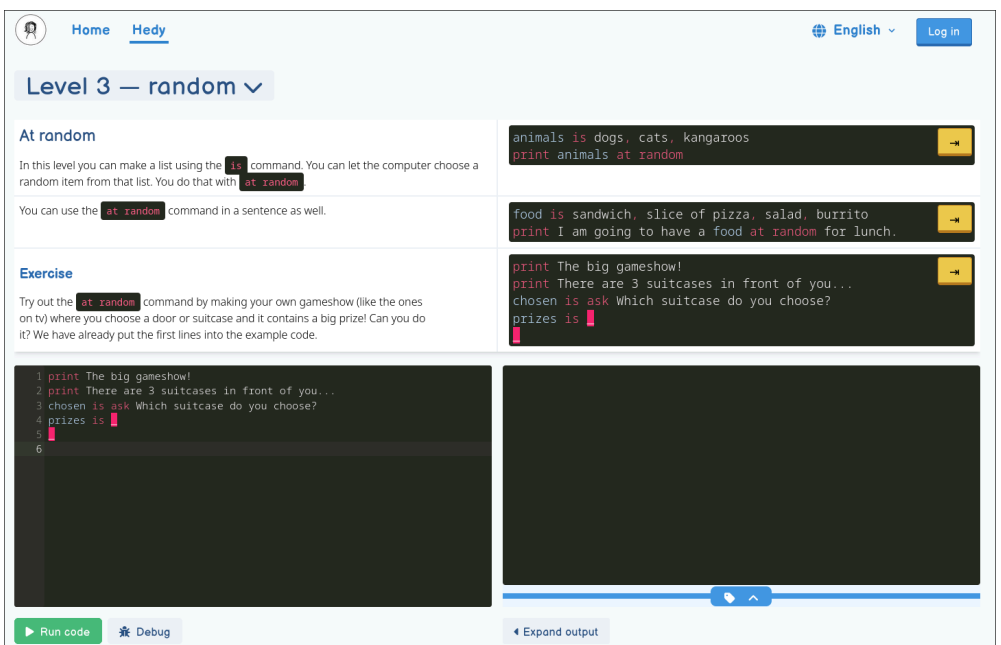
Hedy

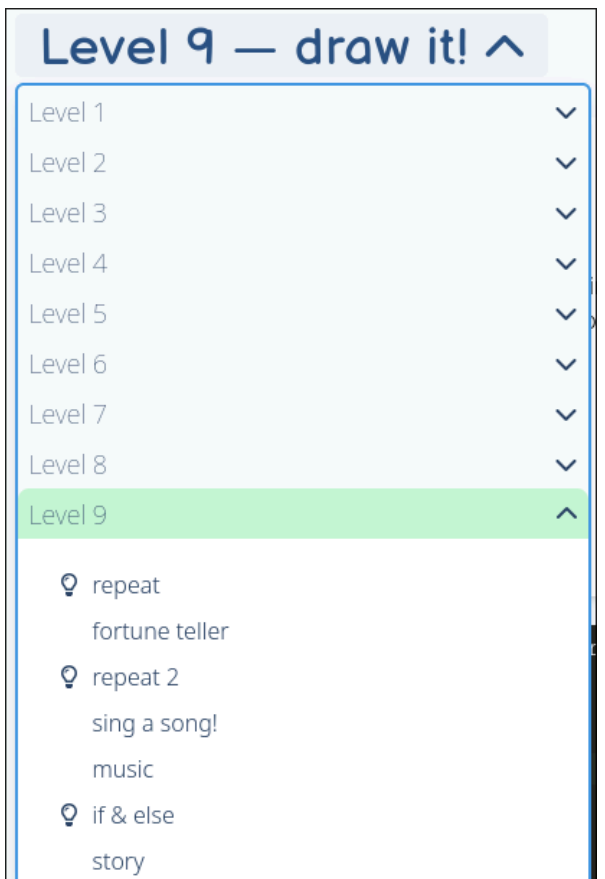
```
1 choices = ['stone','paper','scissors']
2 print("I choose ", choices[random])
```

STUDENT INTERFACE

Levels and adventures

- Adventures guide step by step
- Levels: basic, advanced and expert





Levels and adventures

What will this code do?

Hedy

```
1  print("Hello there!")
```

Clear error messages and warnings

Hedy

```
1  print("Hello there!")
```

```
>>>  print("Hello there!")
  File "<python-input-0>", line 1
    print("Hello there!")
IndentationError: unexpected indent
>>>
```

Figure 9: Indentation error in Python

Clear error messages and warnings

Hedy

```
1  print("Hello there!")
```

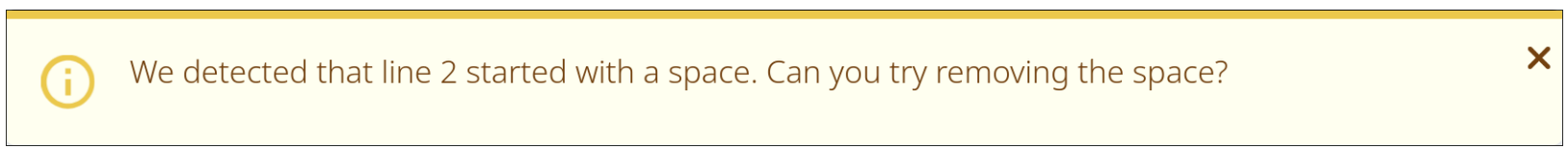


Figure 10: Indentation 'error' in level 2

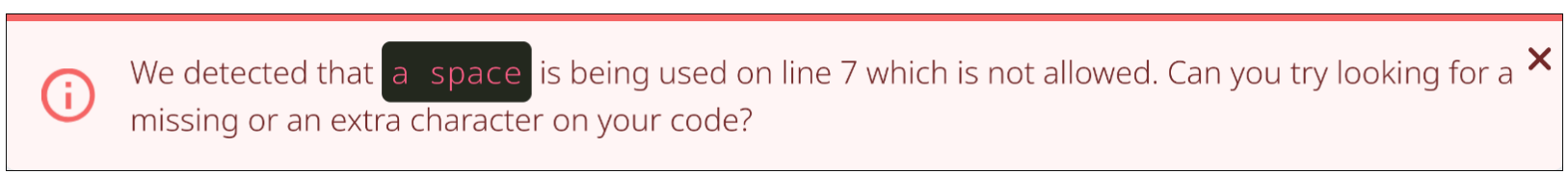


Figure 11: Indentation error in level 6

Clear error messages and warnings


```
>>> print(friuts)
Traceback (most recent call last):
  File "<python-input-9>", line 1, in <module>
    print(friuts)
          ^^^^^^
NameError: name 'friuts' is not defined
>>>
```

Figure 12: Variable not found in Python

We detected that variable `friuts` is being used before being set. Can you set the variable before it is used or use quotation marks for `friuts`?

Figure 13: Variable not found in Hedy (level 14)

NATIVE LANGUAGE SUPPORT

Over 30 languages available!

English

Hedy

```
1 number_1 = numbers at random
```

Français

Hedy

```
1 nombre_1 = nombres au hasard
```

中文 (简体)

Hedy

```
1 数一 = 一组数 在 随机
```

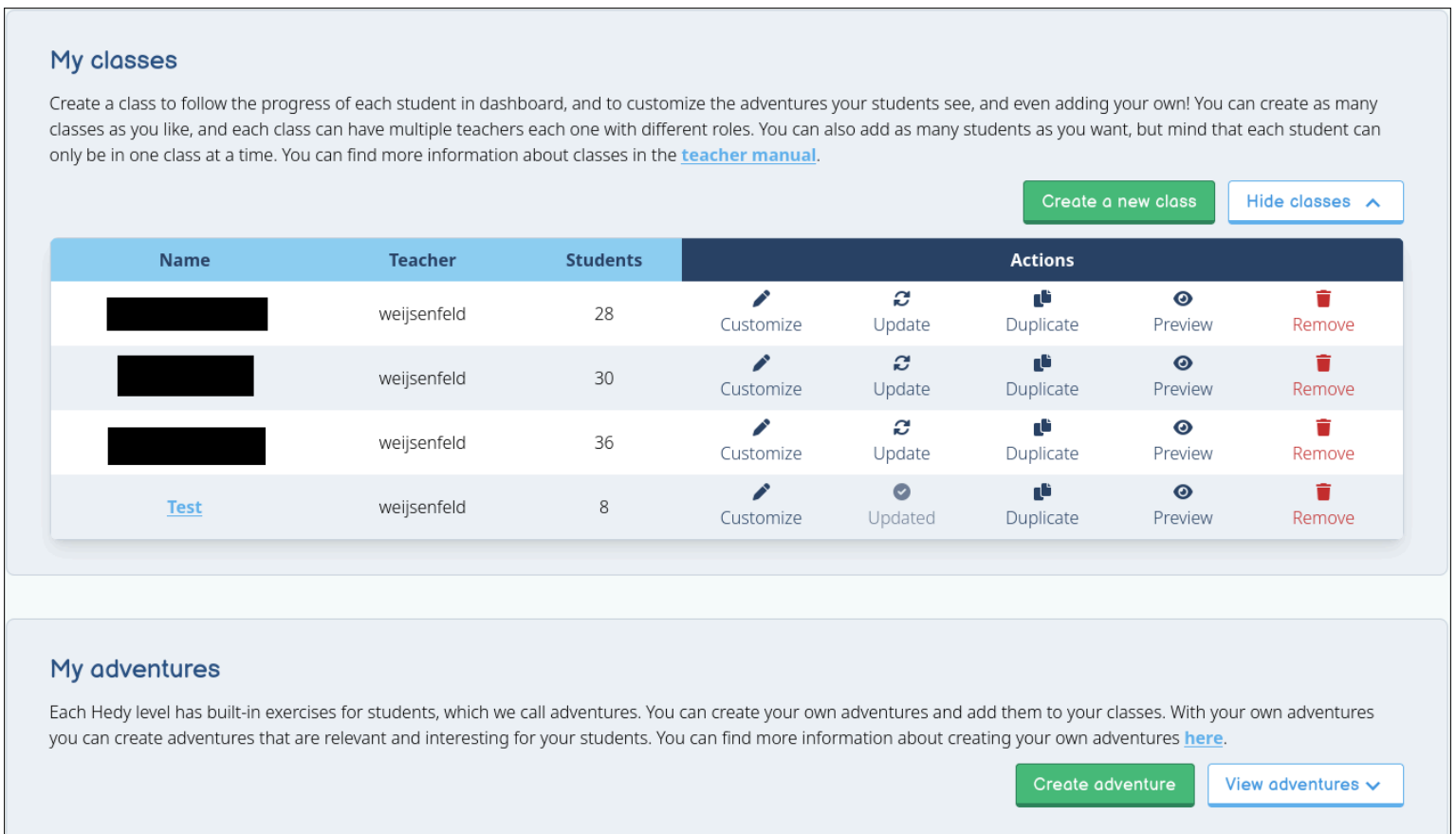
- And many more!

Help translating :)

- Is your language available?
  - No? Add your language!
  - Yes? Help with updating content!
- No programming experience needed!

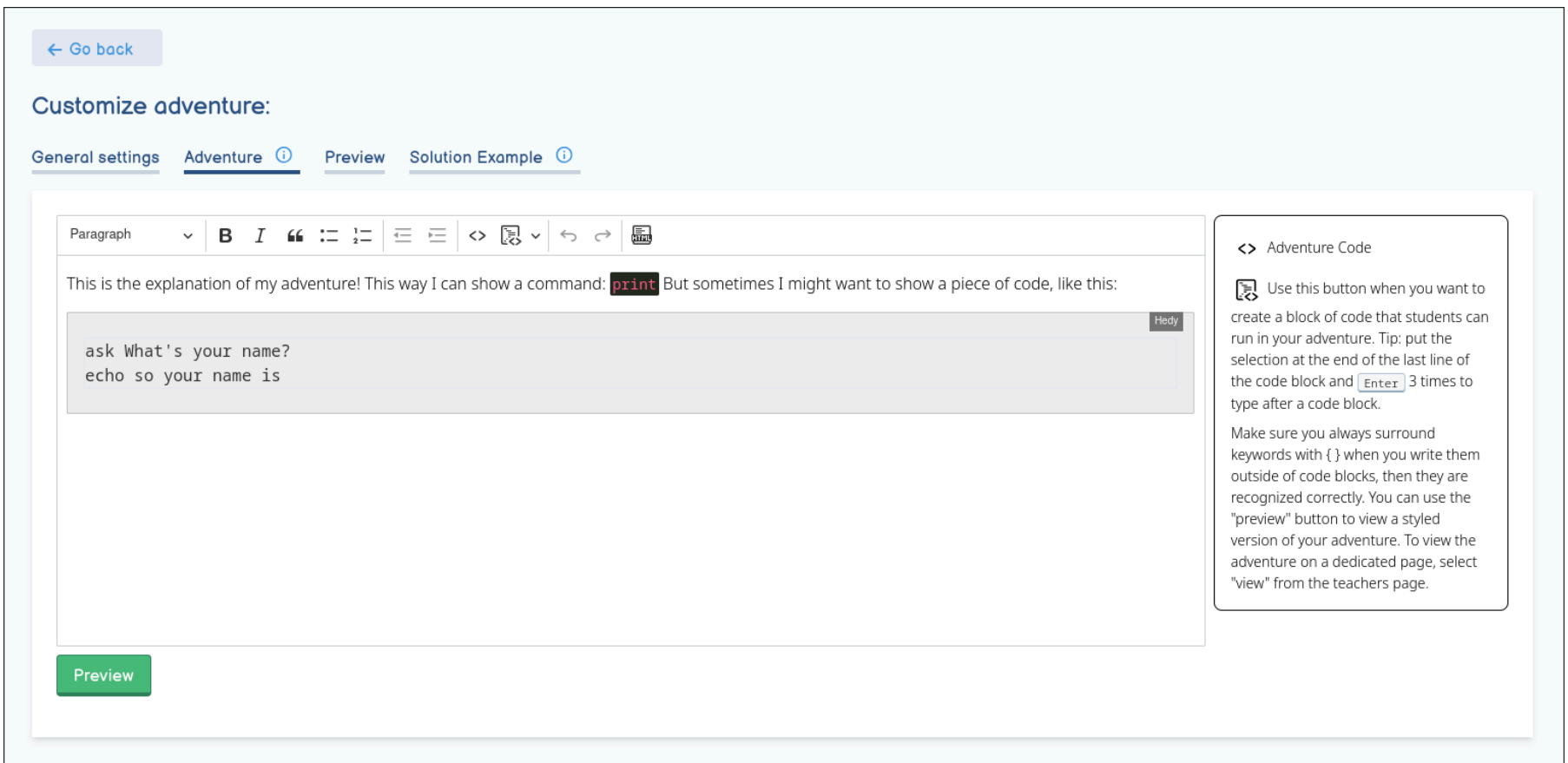
TEACHER INTERFACE

Manage your classes



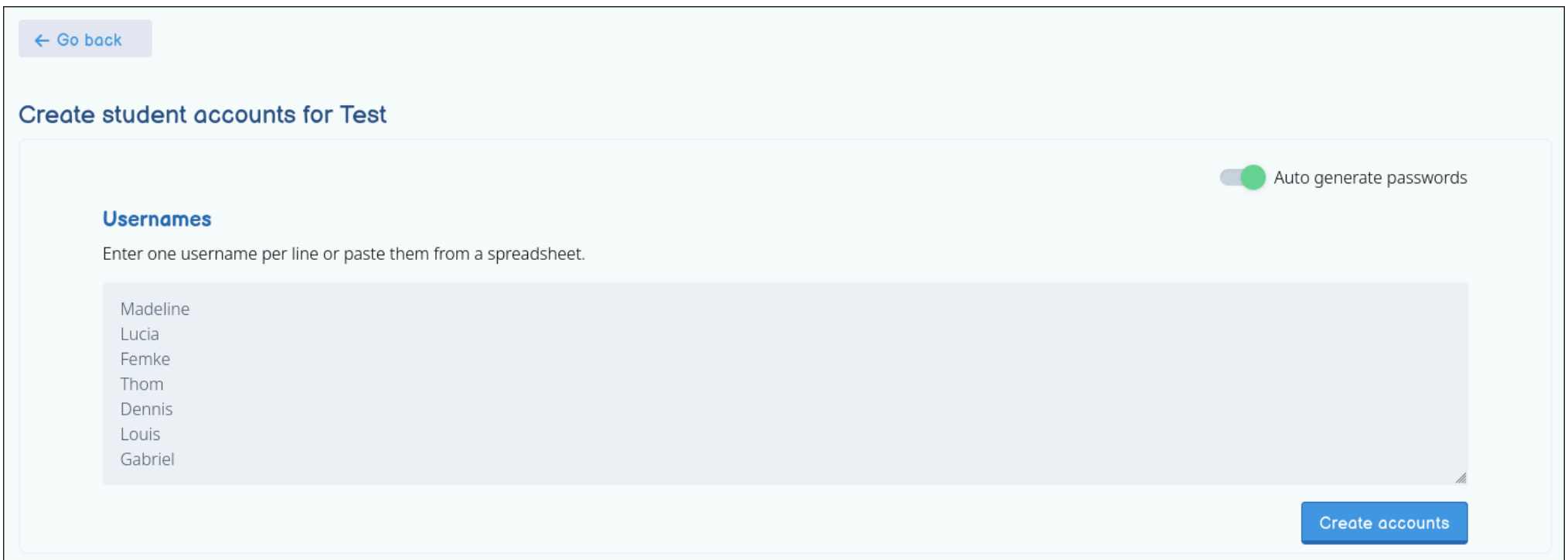
Fully customizable levels

Create custom adventures



Create student accounts

- No emails needed!



ROADMAP 2026

Roadmap 2026

- Significant teacher interface improvements
- Workbooks

Roadmap 2026

Teacher interface changes: Grading

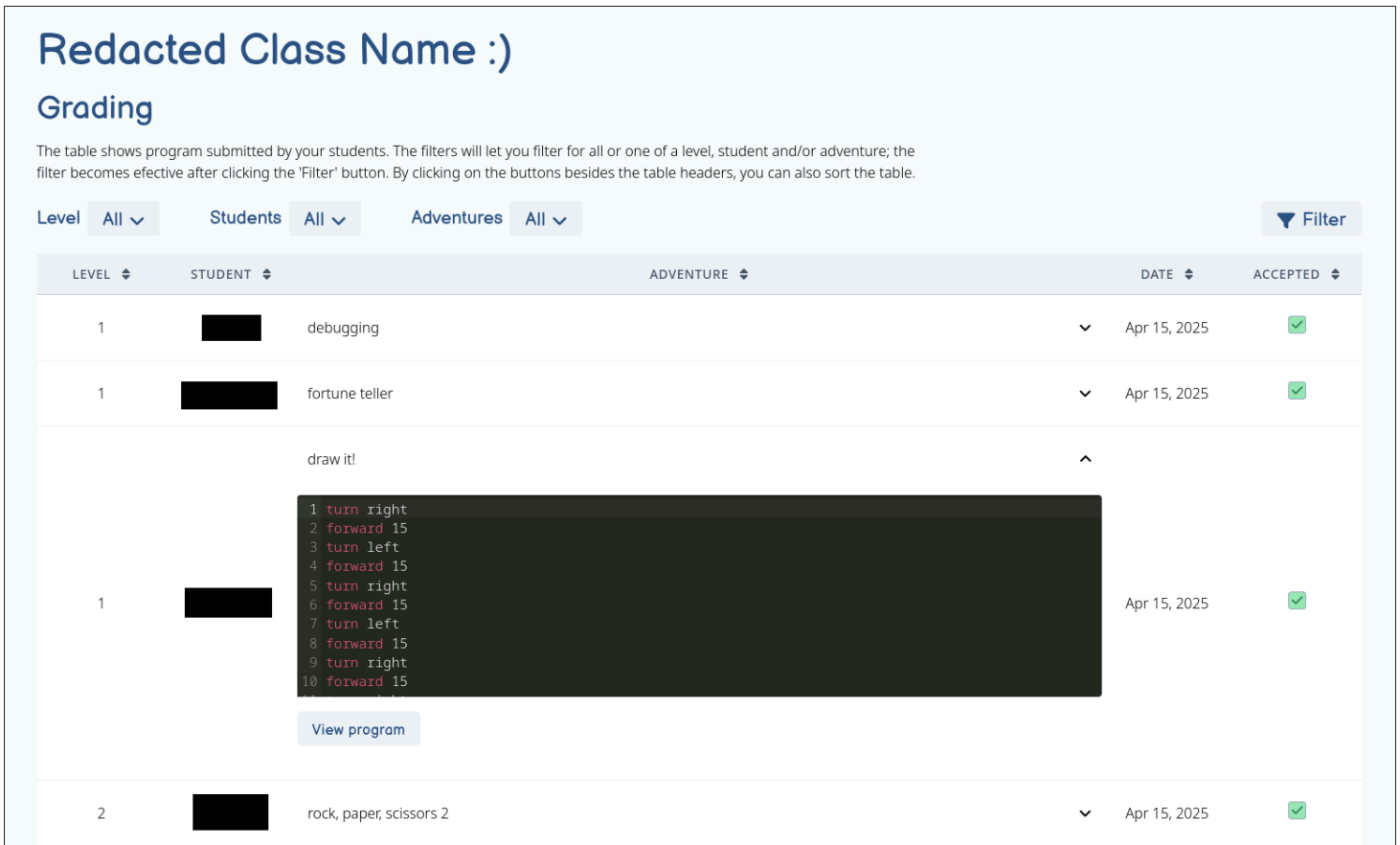


Figure 20: Better interface to show and grade submitted programs

Roadmap 2026

Teacher interface changes: Creating new classes

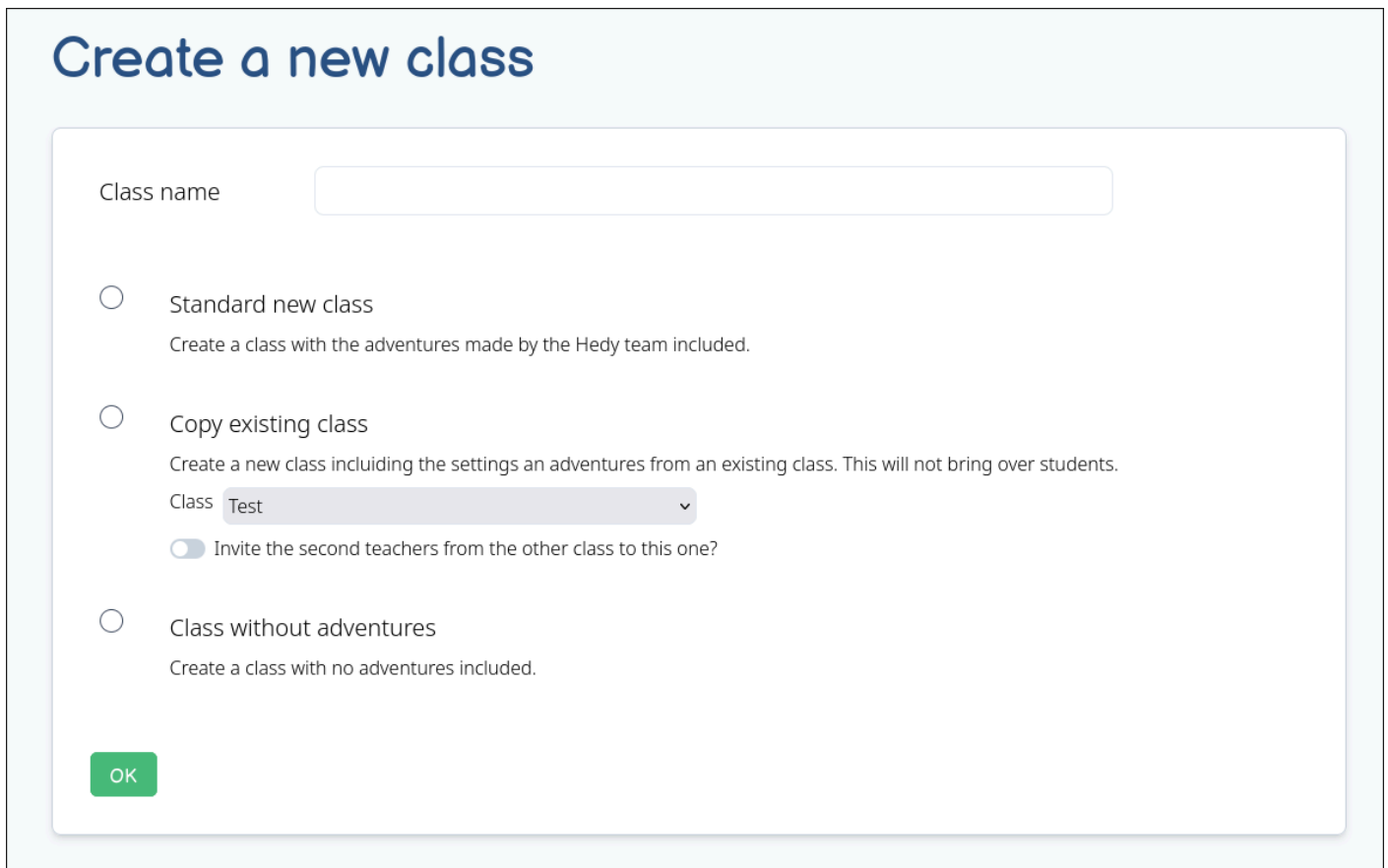


Figure 21: More options when creating a new class

Roadmap 2026

Teacher interface changes: Calm class overview

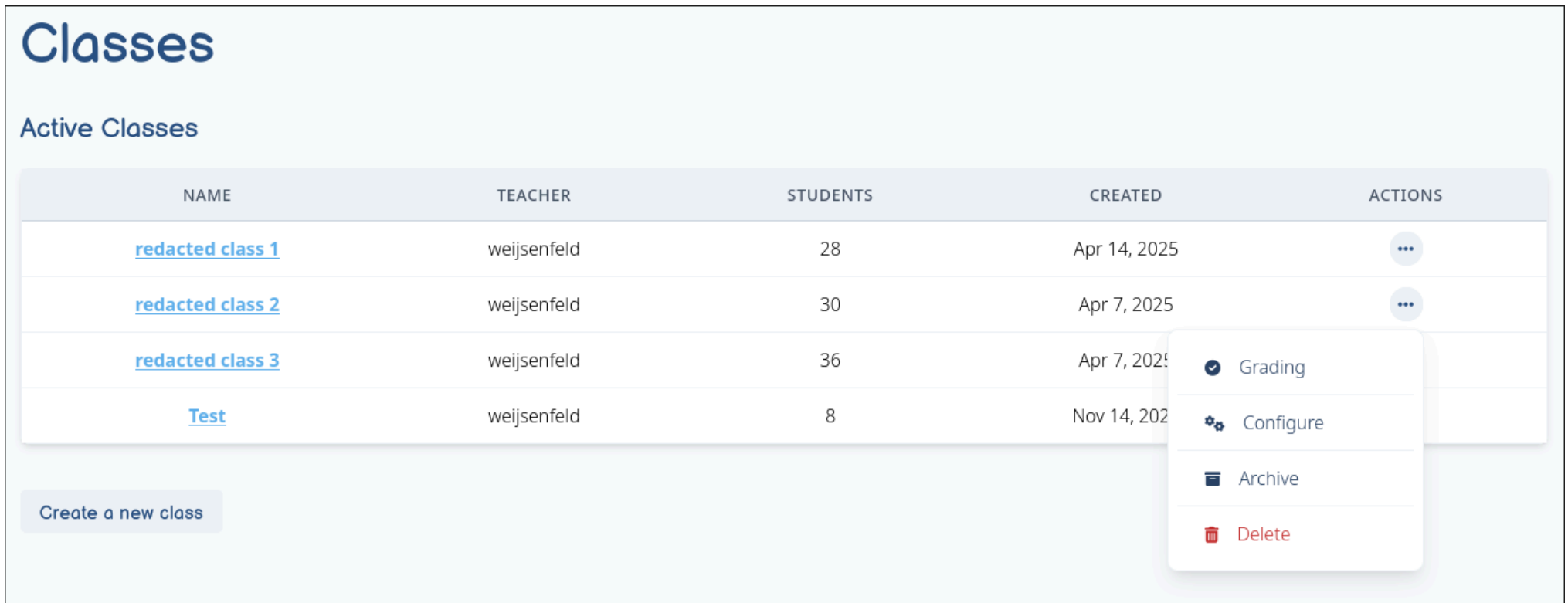


Figure 22: Quick access to grading, configuration, archiving and deleting

Roadmap 2026

Teacher interface changes: All materials clearly in one place

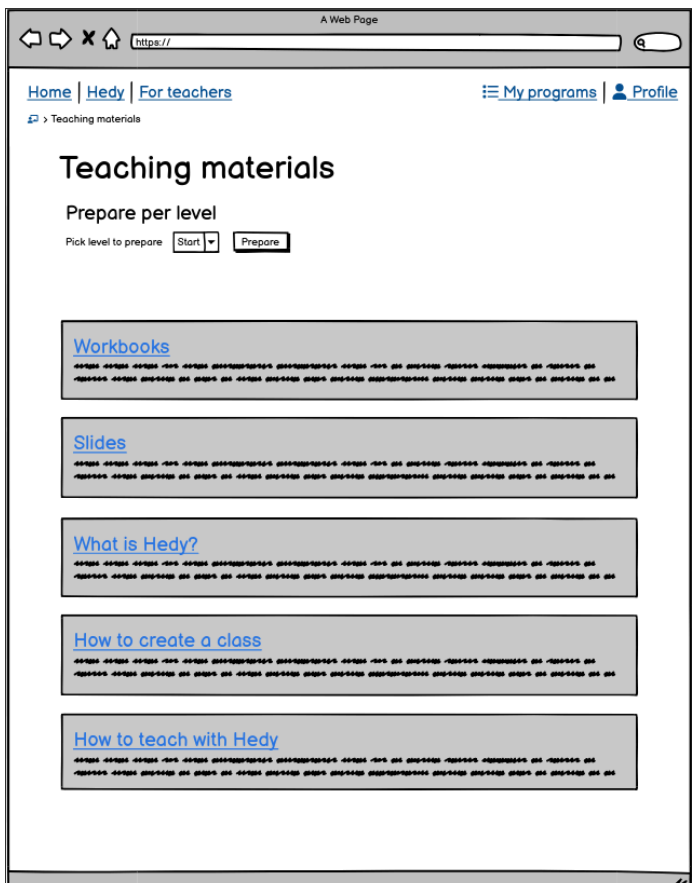


Figure 23: Overview of all teaching materials

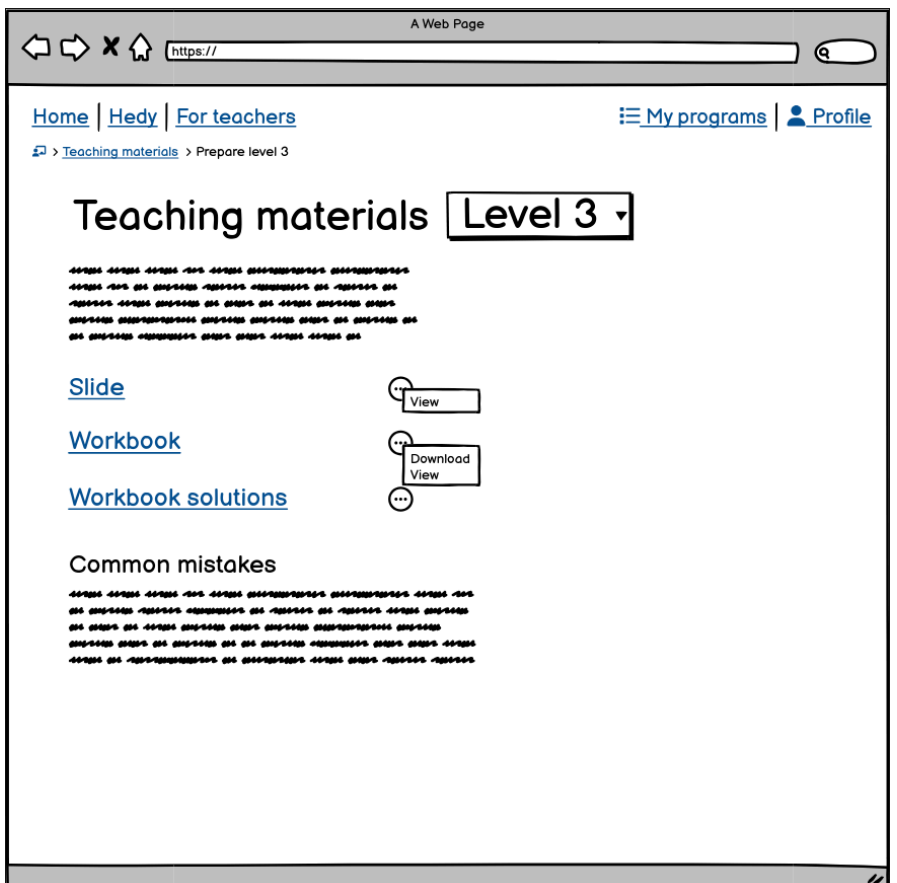


Figure 24: Prepare your class per level

Roadmap 2026

New workbooks

Figure 25: Students are asked questions on paper about variables

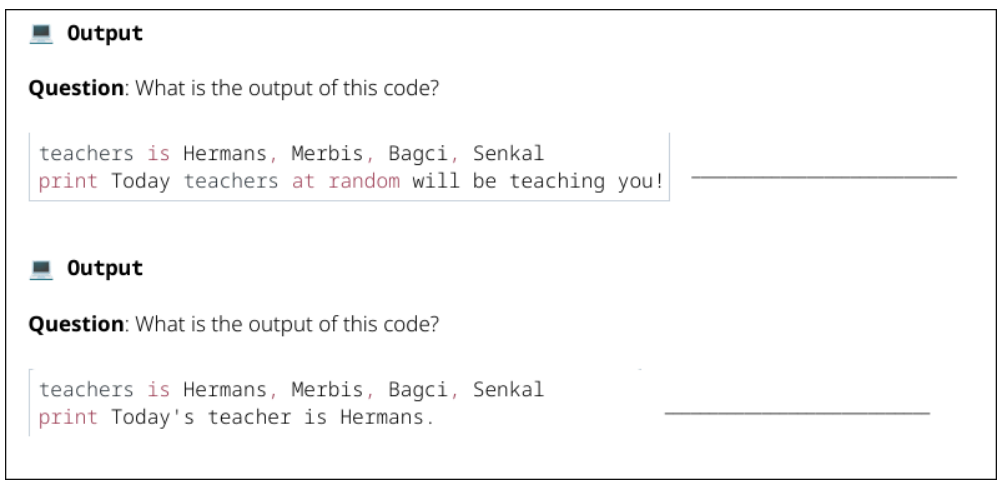


Figure 26: Students are asked to predict the output of the code

Many more ways to contribute!

- As a developer
- As an educator
- As a translator

Many more ways to contribute!

hedy.org

github.com/hedyorg/hedy

THANK YOU!

Hedy - Textual programming made easy

Bibliography

Gilsing, M., and Hermans, F. (2021). Gradual Programming in Hedy: A First User Study. *2021 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 1–9. https://doi.org/10.1109/VL/HCC51201.2021.9576236

Hermans, F. (2020). Hedy: A Gradual Language for Programming Education. *Proceedings of the 2020 ACM Conference on International Computing Education Research*, 259–270. https://doi.org/10.1145/3372782.3406262