



Welcome to Hedy!

In Level 1 you can use the commands `print`, `ask` and `echo`. Type your code in the programming field. Or press the green button in the example code block, and the code will be read for you! Try the code yourself with the green 'Run code' under the programming field.

Print text to the screen using the `print` command.

Ask for input with `ask` and repeat it back with an `echo`.

Example Hedy Code

```
print Hello!
print Welcome to Hedy!
```

Example Hedy Code

```
ask What is your name?
```

Textual programming made easy!

Femke Weijenfeld – FOSDEM 2026



TEXTUAL PROGRAMMING

Python error messages



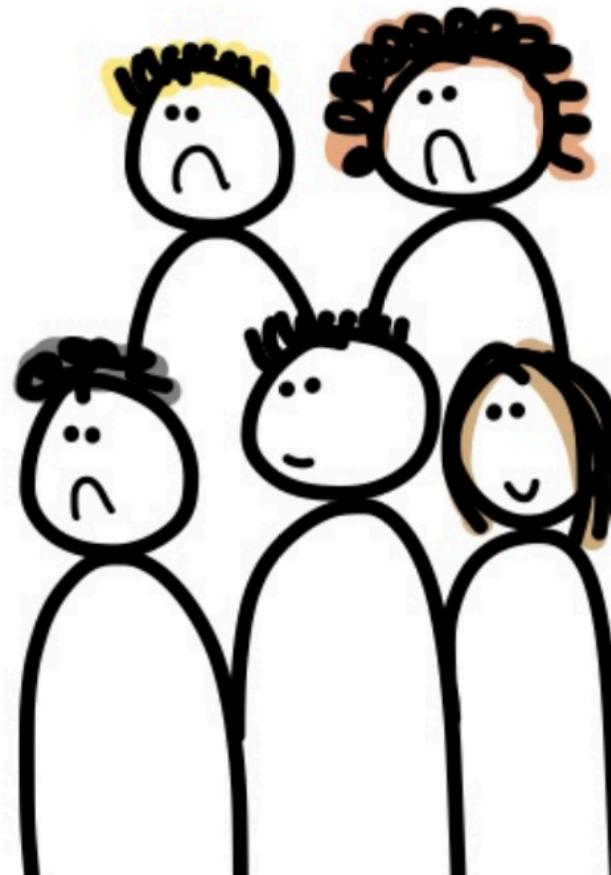
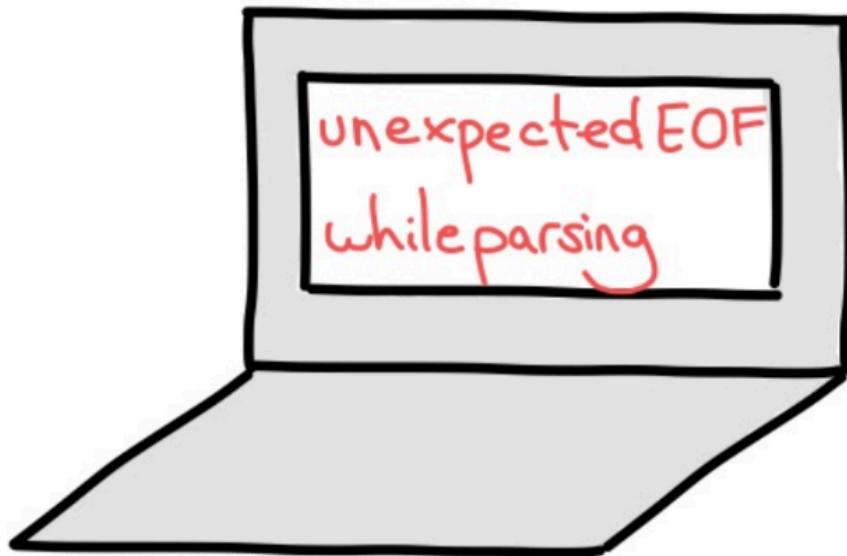
SyntaxError: unterminated string literal (detected at line 1)

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

The screenshot shows the Hedy web-based programming environment. At the top, there's a navigation bar with "Home" and "Hedy" buttons, and language and log-in options. Below it, the title "Level 9 — draw it! ▾" is displayed. A section titled "Exercise" asks users to "Recreate the drawings with the turtle!". It includes three examples: "Square (3)", "Randomly colored star (5)", and "Randomly colored spiral (7)". Below these are code snippets and a preview area. The first snippet is:

```
1 colors is red, green, blue, yellow, purple, pink
2 repeat 5 times
3   color colors at random
4   forward 100
5   turn 145
```

The preview area shows a drawing of a five-pointed star with randomly colored lines (red, green, blue, yellow, purple). There are buttons for "Run code", "Debug", "Expand output", and "Save drawing".

Gradual syntax approach



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

(Gilsing and Hermans, 2021; Hermans, 2020)



Gradual syntax approach

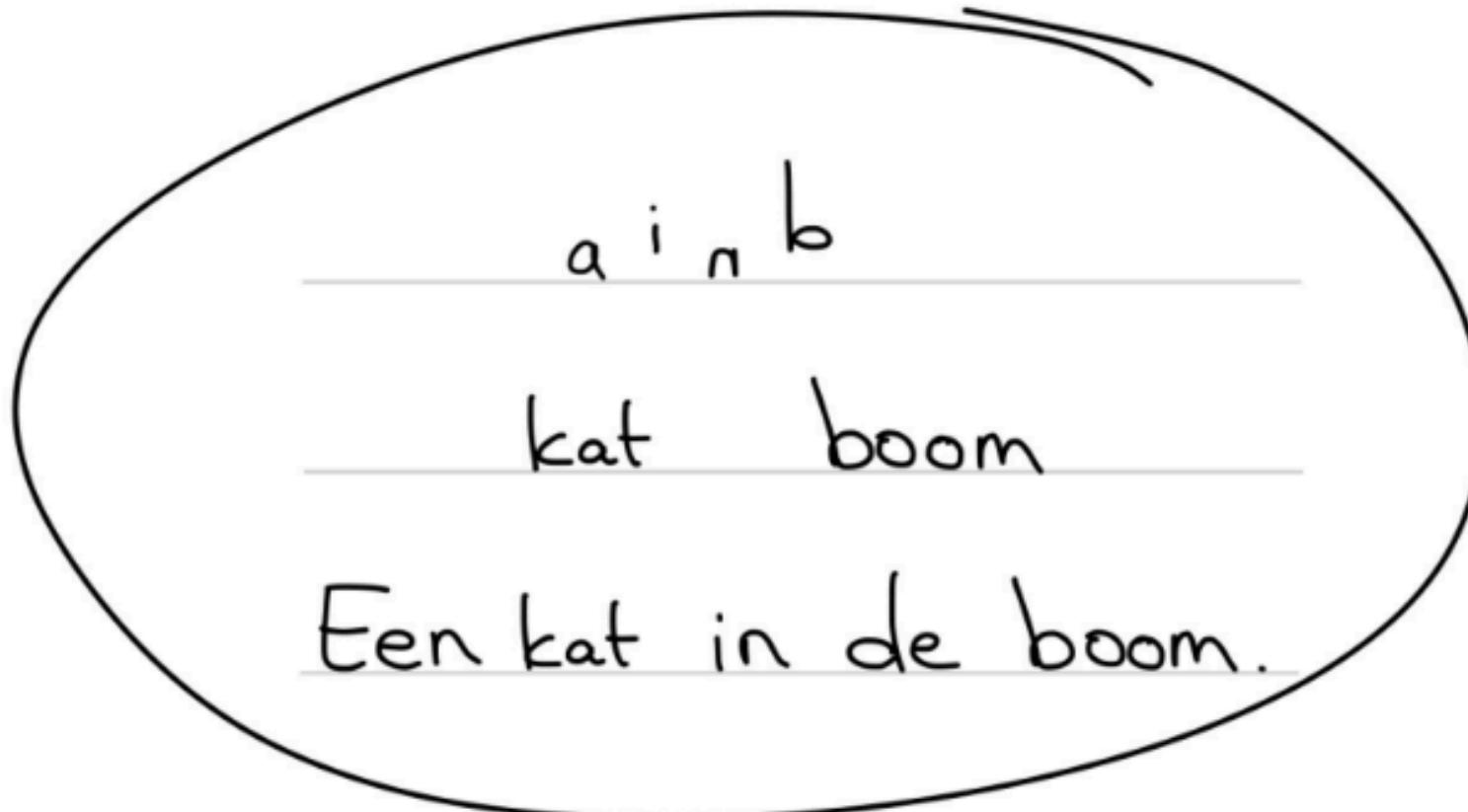


Figure 5: How students learn to write

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

Home Hedy English Log in

Level 3 — random ▾

At random

In this level you can make a list using the `is` command. You can let the computer choose a random item from that list. You do that with `at random`.

You can use the `at random` command in a sentence as well.

Exercise

Try out the `at random` command by making your own gameshow (like the ones on tv) where you choose a door or suitcase and it contains a big prize! Can you do it? We have already put the first lines into the example code.

```
1 print The big gameshow!
2 print There are 3 suitcases in front of you...
3 chosen is ask Which suitcase do you choose?
4 prizes is []
5
6
```

Run code Debug Expand output

Level 9 — draw it! ^

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

Level 7

Level 8

Level 9

- repeat
- fortune teller
- repeat 2
- sing a song!
- music
- if & else
- story

Levels and adventures



```
1 colors is red, green, blue, yellow, purple, pink
2 repeat 5 times
3   color colors at random
4   forward 100
5   turn 145
```

The Scratch canvas displays a drawing of a five-pointed star. Each point of the star is a different color: red, green, blue, yellow, and purple. The star is drawn on a white background with a black mouse cursor at the bottom center. Below the canvas is a status bar showing the message "colors: red,green,blue,yellow,purple,pink".

Run code Debug Expand output Save drawing

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!")
```



We detected that line 2 started with a space. Can you try removing the space? X

Figure 10: Indentation 'error' in level 2



We detected that **a space** is being used on line 7 which is not allowed. Can you try looking for a **missing** or an extra character on your code? X

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
```

print hello
打印 你好
قول مرحبا

► And many more!

Help translating :)



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

Français ▾

Ne

Indonesia

日本語

नेपाली

Nederlands

中文 (简体)

中文 (繁體)

Add your language!



TEACHER INTERFACE

Manage your classes



My classes

Create a class to follow the progress of each student in dashboard, and to customize the adventures your students see, and even adding your own! You can create as many classes as you like, and each class can have multiple teachers each one with different roles. You can also add as many students as you want, but mind that each student can only be in one class at a time. You can find more information about classes in the [teacher manual](#).

[Create a new class](#)[Hide classes ▾](#)

Name	Teacher	Students	Actions				
[REDACTED]	weijsenfeld	28	Customize	Update	Duplicate	Preview	Remove
[REDACTED]	weijsenfeld	30	Customize	Update	Duplicate	Preview	Remove
[REDACTED]	weijsenfeld	36	Customize	Update	Duplicate	Preview	Remove
Test	weijsenfeld	8	Customize	Updated	Duplicate	Preview	Remove

My adventures

Each Hedy level has built-in exercises for students, which we call adventures. You can create your own adventures and add them to your classes. With your own adventures you can create adventures that are relevant and interesting for your students. You can find more information about creating your own adventures [here](#).

[Create adventure](#)[View adventures ▾](#)

Fully customizable levels



← Go back

Customize class: Test 🖊

Select and order adventures

Level 1 ▾ Add ▾ Reset Create adventure

print (X) ask (X) parrot (X) rock, paper, scissors (X) haunted house (X) story (X) music (X) turtle (X) draw it! (X) restaurant (X) fortune teller (X) debugging (X) hospital (X) Vrij Programmeren (X)

Other settings

Option	Select?
Hide keyword switcher	<input type="checkbox"/>

Opening dates ▾

Preview Remove customization

Create custom adventures



[← Go back](#)

Customize adventure:

General settings Adventure ⓘ Preview Solution Example ⓘ

Paragraph v | **B** *I* « := := | = = | <> v | ↶ ↷ | HTML

This is the explanation of my adventure! This way I can show a command: `print` But sometimes I might want to show a piece of code, like this:

```
ask What's your name?  
echo so your name is
```

Hedy

<> Adventure Code

Use this button when you want to create a block of code that students can run in your adventure. Tip: put the selection at the end of the last line of the code block and `Enter` 3 times to type after a code block.

Make sure you always surround keywords with {} when you write them outside of code blocks, then they are recognized correctly. You can use the "preview" button to view a styled version of your adventure. To view the adventure on a dedicated page, select "view" from the teachers page.

[Preview](#)

Create student accounts



- ▶ No emails needed!

[← Go back](#)

Create student accounts for Test

Auto generate passwords

Usernames

Enter one username per line or paste them from a spreadsheet.

```
Madeline
Lucia
Femke
Thom
Dennis
Louis
Gabriel
```

Create accounts



ROADMAP 2026

Roadmap 2026



- ▶ Significant teacher interface improvements
- ▶ Workbooks

Roadmap 2026

Teacher interface changes: Grading



Redacted Class Name :)

Grading

The table shows programs submitted by your students. The filters will let you filter for all or one of a level, student and/or adventure; the filter becomes effective after clicking the 'Filter' button. By clicking on the buttons besides the table headers, you can also sort the table.

Level	All	Students	All	Adventures	All	Filter
LEVEL	STUDENT			ADVENTURE	DATE	ACCEPTED
1	[REDACTED]	debugging			▼ Apr 15, 2025	<input checked="" type="checkbox"/>
1	[REDACTED]	fortune teller			▼ Apr 15, 2025	<input checked="" type="checkbox"/>
		draw it!			^	
1	[REDACTED]	<pre>1 turn right 2 forward 15 3 turn left 4 forward 15 5 turn right 6 forward 15 7 turn left 8 forward 15 9 turn right 10 forward 15</pre>			Apr 15, 2025	<input checked="" type="checkbox"/>
		View program				
2	[REDACTED]	rock, paper, scissors 2			▼ Apr 15, 2025	<input checked="" type="checkbox"/>

Figure 20: Better interface to show and grade submitted programs

Roadmap 2026

Teacher interface changes: Creating new classes



Create a new class

Class name

Standard new class
Create a class with the adventures made by the Hedy team included.

Copy existing class
Create a new class including the settings and adventures from an existing class. This will not bring over students.
Class
 Invite the second teacher from the other class to this one?

Class without adventures
Create a class with no adventures included.

Figure 21: More options when creating a new class

Roadmap 2026

Teacher interface changes: Calm class overview



Classes

Active Classes

NAME	TEACHER	STUDENTS	CREATED	ACTIONS
redacted class 1	weijsenfeld	28	Apr 14, 2025	...
redacted class 2	weijsenfeld	30	Apr 7, 2025	...
redacted class 3	weijsenfeld	36	Apr 7, 2025	
Test	weijsenfeld	8	Nov 14, 2024	

Create a new class

- ✓ Grading
- ⚙️ Configure
- 📁 Archive
- trash Delete

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

Roadmap 2026

Teacher interface changes: All materials clearly in one place



A screenshot of a web browser window titled 'A Web Page'. The address bar shows 'https://'. The page content includes a navigation bar with 'Home | Hedy | For teachers' and 'My programs | Profile'. Below this is a breadcrumb trail 'Teaching materials'. A section titled 'Teaching materials' contains a sub-section 'Prepare per level' with a dropdown menu 'Pick level to prepare' and buttons 'Start' and 'Prepare'. Below this are five rectangular boxes: 'Workbooks', 'Slides', 'What is Hedy?', 'How to create a class', and 'How to teach with Hedy'.

Figure 23: Overview of all teaching materials

A screenshot of a web browser window titled 'A Web Page'. The address bar shows 'https://'. The page content includes a navigation bar with 'Home | Hedy | For teachers' and 'My programs | Profile'. Below this is a breadcrumb trail 'Teaching materials > Prepare level 3'. A section titled 'Teaching materials Level 3' contains a grid of small thumbnail images. To the right of the thumbnails are three buttons: 'Slide View', 'Workbook Download', and 'Workbook solutions ...'. Below this is a section titled 'Common mistakes' with a grid of small thumbnail images.

Figure 24: Prepare your class per level

Roadmap 2026

New workbooks



Question: Circle variables in this code:

```
name is Hedy
print Hello name
age is 17
print You are age years old
```

Question: Circle places where the variable is **being set** in this code:

```
name is Hedy
print Hello name
age is 17
print You are age years old
```

Question: Circle places where the variables are **being used** in this code:

```
name is Hedy
print Hello name
age is 17
print You are age years old
```

Output

Question: What is the output of this code?

```
teachers is Hermans, Merbis, Bagci, Senkal
print Today teachers at random will be teaching you!
```

Output

Question: What is the output of this code?

```
teachers is Hermans, Merbis, Bagci, Senkal
print Today's teacher is Hermans.
```

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

print Hello

for times in range 1 to 10
print times ' * 4 = ' times * 4

A large, stylized blue curly arrow points from the bottom-left towards the explanatory text. The text is contained within two dark grey, rounded rectangular boxes. The top box contains the word "print" in pink and "Hello" in white. The bottom box contains the Python code "for times in range 1 to 10" in pink, "print times ' * 4 = ' times * 4" in white, and a green equals sign.

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>