Programmering - Test

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Sæt kryds ved *sand* eller *falsk* for hver udtalelse. Det giver $+1$ point at svare korrekt, -1 point at svare forkert, 0 ikke at svare.

Check/mark either *true* or *false* for each question/statement. $+1$ point is awarded for a correct answer, -1 point for a wrong answer and 0 points for a wrong answer.

1 Eksempel / example

Forhold dig til følgende udtryk $a = 2 + 2$:

Consider the following statements $a = 2 + 2$:

		Sand True	Falsk False
(1)	a=5	☐	X
(2)	a=4	☐	X
(3)	a=7	☐	☐

Eksempel-opgaven kan max give 3 point og her giver den 0 point. +1 point for (1), -1 point for (2) og 0 point for (3).

The example-question can maximally award 3 points and here it awards 0 points. +1 point for (1), -1 point for (2) og 0 point for (3).

2 Basic Python

Besvar spørgsmål om følgende kode (Answer questions about the following code):

```python
# Calculator of averages
n = 0
s = 0
while True:
        n = n+1
        userinput = input("Type a number (or 'stop' to stop):")
        if userinput == 'stop':
            break
        x = int(userinput)
        s = s + x
avg = s/n
print(f"The average is {avg}")
```

Og følgende eksempel-output (and the following example output):

```
Type a number (or 'stop' to stop):2
Type a number (or 'stop' to stop):3
Type a number (or 'stop' to stop):4
Type a number (or 'stop' to stop):stop
The average is 3.0
```

		Sand True	Falsk False
(4)	Variablen `userinput` er af typen *integer* (The variable `userinput` is of type *integer*)	☐	☐
(5)	Variablen `n` er af typen *integer* (The variable `n` is of type *integer*)	☐	☐
(6)	Variablen `avg` er af typen integer. (The variable `avg` is of type *integer*)	☐	☐
(7)	Programmet crasher hvis brugeren skriver `seks` i stedet for et tal. (The program crashes if the user types `six` instead of a number.)	☐	☐
(8)	Programmet kan crashes med fejl fra linje 6. (The program can crash with an error from line 6.)	☐	☐
(9)	Programmet kan crashes med fejl fra linje 9. (The program can crash with an error from line 9.)	☐	☐
(10)	Hvis brugeren indtaster 3 tal og `stop` som i eksempl-outputtet, vil linje 11 blive udført 4 gange. (If the user types 3 numbers and `stop`, as in the example output, then line 11 is executed 4 times).	☐	☐
(11)	Hvis linje 5 ændres til `##n = n+1` vil programmet altid beregne 0 som gennemsnit. (If line 5 is changed to `##n = n+1`, then the program will always calculate 0 as average.	☐	☐
(12)	Hvis linje 5 ændres til `##n = n+1` vil programmet crashe. (If line 5 is changed to `##n = n+1`, then the program will crash.	☐	☐

3 Pygame

Besvar spørgsmål om følgende kode (Answer questions about the following code):

```python
import pygame as pg
import random
screen = pg.display.set_mode((400,400))
running = True
x = 100
y = 300
while running:
    events = pg.event.get()
    for e in events:
        if e.type == pg.KEYDOWN:
            if e.key == pg.K_ESCAPE:
                running = False

    x = x - 5
    if x < 0:
        x = 500

    screen.fill((255,255,255))
    pg.draw.circle(screen, (200,0,0), (x, y), 50)

    pg.display.update()
    time.sleep(0.1)
```

		Sand True	Falsk False
(13)	Pygame-spillet har hvid baggrundsfarve (The game has white background color)	☐	☐
(14)	Pygame-spillet viser en rød cirkel (The game shows a red circle)	☐	☐
(15)	Pygame-spillet viser en blå cirkel (The game shows a blue circle)	☐	☐
(16)	Cirklen i spillet bevæger sig fra venstre mod højre hen over skærmen (The circle in the game moves from the left to right across the screen)	☐	☐
(17)	Cirklen starter med at være tegnet i nederste venstre hjørne af skærmen (The circle starts out in the lower left corner of the screen)	☐	☐
(18)	Der er en eller flere frames hvor cirklen ikke kan ses på skærmen (There is one or more frames where the circle is not visible on screen)	☐	☐
(19)	Cirklens position kan ændres ved at trykke på piletasterne på tastaturet (The position of the circle can be changed by pressing the arrow keys on the keyboard)	☐	☐

4 Lister / lists

Besvar spørgsmål om følgende kode (Answer questions about the following code):

```python
numbers = [11, 22, 33, 44]
print(numbers[0])
print(numbers[-1])
print(numbers[2])
numbers.append(1337)
print(len(numbers))
for i in range(3):
    numbers.append(i*10)
print(numbers)
```

		Sand True	Falsk False
(20)	Output fra print i linje 2 er 11 (The output from print on line 2 is 11)	☐	☐
(21)	Output fra print i linje 3 er 44 (The output from print on line 3 is 44)	☐	☐
(22)	Output fra print i linje 4 er 44 (The output from print on line 4 is 44)	☐	☐
(23)	Output fra print i linje 6 er 4 (The output from print on line 6 is 4)	☐	☐
(24)	Output fra print i linje 9 er [11,22,33,44,1337,0,10,20] (The output from print on line 0 is [11,22,33,44,1337,0,10,20])	☐	☐
(25)	Output fra print i linje 9 er [11,22,33,44,1337,10,20,30] (The output from print on line 0 is [11,22,33,44,1337,10,20,30])	☐	☐