**Exercise 8 – tourism expands**

*General instructions:*

This task is done and returned in the same way as the previous exercises 5 and 6 - the same instructions and rules apply - as well as the same practice for the final result, i.e. the video clip and . py file recovery. It is especially recommended to save the video as a web link, including the link to your own implementation. py to the opening comments of the file.

**Travel expands**

With Ernest and Kernest, travelers who are active and open-minded in their choice of holiday destinations, the monkeys on the deserted island become aware that there is life outside their own island too! Ernesti and Kernesti write down precisely the coordinates of this island in their own travel diaries and name it the island "S1".

Ernest and Kernest's visit arouses among the island's monkey intellectuals a reflection on whether they themselves should act in the same way as Ernest and Kernest? That is - to travel beyond the sea every now and then - even a little further away from the forests of your own island? Do you know what all the nice and exciting things you could encounter there? Could they themselves become as broad-minded as Ernesti and Kernesti if they too just learned that travel hobby?

The monkeys think about this travel issue with a large group, and almost unanimously come to the conclusion that yes - even if there are only monkeys here, yes, travel is definitely a good thing for us too! The minority remains the crowd who wonder, just a little bit, what the hell happened to the monkeys who went on the trip earlier, when none of those guys have come back...

Kuva, joka sisältää kohteen Piirrokset, piirros, luonnos, clipart

Kuvaus luotu automaattisesti

**Prehistory of the Monkey Archipelago**

In order for the monkeys to realize their travel dreams, the necessary environment must be defined a little more thoroughly than before. The deserted island "S1" examined earlier is located in a volcanic area, where it is possible that new islands are always born in the deserted sea from time to time due to underwater volcanic eruptions. Thus…

-create a deserted blue-hued sea as a background for the user interface. Add a volcano eruption mechanism so that when you press the "NEW ISLAND" button in the sea, a new island is randomly created by drawing a random location in a free spot.

Kuva, joka sisältää kohteen luonnos, Suorakaide, tunkki

Kuvaus luotu automaattisesti

When creating a new island and defining a new location for it through randomness, take advantage, for example, of the fact that if a new "island" tries to spawn at the location of a previous island during creation, make a simple functionality that detects this and draws a new possible location for the island.

Determine the size of the island so that the available "sea" can fit about ten islands of a suitable size

-add functionality that always adds ten monkeys to the island after the island is created. Create a mechanism that generates a unique 200-1000 A hertz sound effect of each monkey on the island every ten seconds or so, illustrating the monkey that lives there and its life

-after these steps are done, make sure everything is working correctly in terms of adding islands and populating them with monkeys. To see this easily, add functionality where you can "empty" the sea completely of islands if you want, and start adding islands from the beginning. With this you can make sure that new islands are always formed in a new way in random places.

-next, empty the sea of islands and add ten islands there. After that, run the command

i\_suppose\_i\_have\_earned\_so\_much\_ points ( 5)

**A monkey's life - laughter shortens life**

Monkeys are happy, contented and as we know - hardworking animals. Diligence is of course only realized if there is something reasonable to do, with which you can practice that diligence. As seen in previous exercises, monkeys are also able to learn new things.

The monkey species under consideration also has an interesting special feature related to the life cycle. Namely, these monkeys don't feel the end of life associated with old age or frailty at all, instead these monkeys live to the fullest, enjoying the tasks available - and bananas, of course - day in and day out! The only situation where the monkeys can die while on the island is that they can die of laughter. Because of this, monkey parents, for example, try to guide their children to always remain serious, no matter how amusing the situation or the friend's expression. Likewise, for example, joking among monkeys is frowned upon.

In addition to the risk of dying of laughter, another well-known limitation of monkey life is, of course, the fact that when swimming in the sea, monkeys always have a certain risk of being eaten by sharks. Because of this …

-modify the entity you built so that if the monkey is on the island, it has a 1% risk of dying of laughter every 10 seconds. Add a sound effect to the implementation, which illustrates with laughter, if the risk comes true for one of the monkeys.

-correspondingly edits the phenomenon as a whole, with which, if a monkey moves to the sea, it has about a percent risk of being eaten by a shark every second. Accordingly, add the sound effect of being eaten to your implementation.

-illustrate in your user interface a situation where there are initially "full numbers" of monkeys on the islands. After this, send some of the monkeys to swim in the sea and check that the risk situations you created are basically realized correctly

-when you have done this, run the command

i\_suppose\_i\_have\_earned\_so\_much\_ points ( 10)

**The spread tourism knowledge**

The monkeys on the island where Ernesti and Kernesti have traveled are aware of the delicacy and beauty of travel. This island is called S1, so...

-modify your implementation so that the name of the island S1, S2, S3, ... appears next to each island

…and of course, at first only the S1 monkeys on the island are aware of the wonders of travel. And, the other islands S2, S3, … etc don't know anything about tourism yet. This means that initially only island S1 has monkeys that know how to swim purposefully towards the sea. At first, on the other islands, the monkeys are content only on the island, without striving to leave. For this…

-modify the appearance of the islands so that each island shows the number of monkeys staying on the island in real time

-adds functionality that adds docks to every direction for an island (initially only S1) with an awareness of the wonderfulness of travel

Kuva, joka sisältää kohteen luonnos, piirros, Piirrokset, valkoinen

Kuvaus luotu automaattisesti

-and, create a functionality that adds functionality to every island that is aware of the wonderfulness of tourism (still, initially only in S1...) whereby a monkey randomly leaves the island to scoop towards the sea every 10 seconds either north, east, south or west. Visualize and create a sound effect to describe a monkey swimming in the sea as you see fit.

-make a functionality and review, with which you can illustrate that the implementation you made works correctly. So, initially there are ten monkeys on island S1 - who live or die according to a defined normal routine. And that the number of monkeys is clearly visible and updated on the island. And that monkeys go out to sea every 10 seconds or so, and that this is also reflected in a corresponding decrease in the number of monkeys on the island. Also, make sure that the possibility of being eaten by a shark regarding the swimming monkeys is noticeable.

-when you have done this, run the command

i\_suppose\_i\_have\_earned\_so\_much\_ points ( 15)

**What happens when a monkey arrives on a primitive island?**

What happens the moment a monkey arrives on a new island, where previously there was no knowledge of the outside world, of civilization, and especially of its highest forms such as the delights of tourism?

Kuva, joka sisältää kohteen Piirrokset, piirros, luonnos, kuvitus

Kuvaus luotu automaattisesti

Of course, when a monkey comes to a new island (S2, S3, ...), the number of monkeys on that island immediately increases by one, so ...

-add functionality that increases the population of the number of monkeys on the island, if a new monkey arrives on the island

And, of course, after the new monkey (or more) that arrived on the island has had its fur dry and a welcome banana in hand, immediately after this the conversation and interaction between the monkeys starts, and it won't be long before all the monkeys on the new island are aware that there is life outside their island too! Thus…

-add functionality that, after a monkey arrives on an island where there was no information about the beauty of tourism before (initially S2, S3, ...), "piers" appear on this island in every direction, and monkeys also start leaving this island to travel outwards for ten seconds every (as previously for S1).

-naturally make sure that if there are no monkeys left on the island, then the monkeys cannot go swimming there either

Don't worry about the monkeys going in directions where they will never encounter the islands. The sharks will take care of them!

-make sure that the whole has the functionalities for tourism awareness to be able to be transmitted from one island to another, so that in the end all the islands are aware of tourism issues!

-make several "simulations" of how the islands full of monkeys and the number of monkeys on them develop, how intuitively you can see that some of the monkeys go swimming in stages and how tourism awareness progresses in the archipelago you have created - in stages. If necessary, adjust the initial total number of monkeys on the island or other parameters such as the death to laughter percentage or the risk of being eaten by sharks.

-when you have done all this, Congratulate yourself on a good performance, state in front of the mirror that " Wow , I did that!" and run the command

i\_suppose\_i\_have\_earned\_so\_much\_ points (20)

Appendix A

# template

import tkinter as tk

import winsound

import time

window = tk . Tk ()

ikkuna.title("Exercise 5")

ikkuna.geometry("700x700")

# add five buttons to the top line of the window

decoration = tk . Label ( window , text = "" ). grid ( row = 0 , column = 0 )

point\_button =[ ]

for i in range ( 5 ):

    button\_temp=tk.Button(ikkuna,text="Points: "+str(i+1),padx=40)

    button\_temp.grid(row=0,column=i+1)

    point\_button.append(button\_temp)

def i\_suppose\_i\_have\_earned\_so\_much\_points(amount\_of\_points):

    for i in range(5):

        point\_button[i].configure(bg='gray')

    time.sleep(1)

    for i in range(amount\_of\_points):

        point\_button[i].configure(bg='green')

        winsound.Beep(440+i\*100,500)

# example ...

i\_suppose\_i\_have\_earned\_so\_much\_points(3)

ikkuna.mainloop()