

ESTONIAN UNIVERSITY OF LIFE SCIENCES

Institute of Forestry and Engineering

**Tarkvararakendus „Birdfeeders“**

**Console Application “Birdfeeders”**

Software application

Curriculum in Software design, programming and Data Management

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**TABLE OF CONTENTS :**

**Title page…………………………………………………………..1**

**Table of contents…………………………………………….…….2**

**Purpose of Application…………………………………………... 3**

**Short guide of using the program ……………………………….4 The Source………………………………………………………...5**

**Rules for input……………………………………………….…….8**

**License information……………………………………………...10**

**References…………………………………………………….…..15**

**Application “Birdfeeders in Forest”**

**Purpose of the Application.**

**Figure 1**



The purpose of the console application “Birdfeeders” is to determine the impact of presence of humanmade birdfeeders in the forest subject of study on the ecosystem health which would be expressed in survival rate of birds in the forest and on the increased attractiveness of such a forest in the eyes of human visitors with children, who would be attracted by birds chirping and would enjoy bird feeding as a form of entertainment and as a way to experience outdoors.

As scientific studies by Millikin University in the US showed, “the individual health of birds improved with the presence of humanmade feeders with supplemental feeding, including increased antioxidant levels, reduced stress (heterophil-to-lymphocyte ratio) and more rapid feather growth. In some species, there was improved body condition index scores and innate immune defence” **(Wilcoxen E, et al 2015**). In general, with the presence of birdfeeders with grains, there were observed consistent patterns of birds being in greater overall health . Besides that, survival rates for birds and their offspring were 38 percent higher in areas where bird feeders were present, and places with bird feeders have a higher percentage of young birds recruited into the breeding population than places without. Besides, bird feeders provide food during cold, barren months, give birds energy for migration, supplement natural food resources. As for humans, they offer relaxation and decrease stress. In a world overwhelmed with technology, the joyful chirping of wild birds provides for visitors a soothing source of natural beauty and a nice escape to unwind from daily stressors.[[1]](#footnote-1)

**Figure 2:**



**Short guide for using the program**

To run this program, you need a Python a version at least 3.12.

To test my application, go to my Github (<https://github.com/Makintosh24/BirdfeedersForest>), download the file.

Go to the repository, click the green button “CODE”, Download Zip.

Download repository as a zip file ans unpack in in th=e fo=lder =of =your ch=oice.

( need to have a Pyhton )

You

I take this ZIP to my desktop. Extract it from zip, “Birdfeeders” . We go to the source .

Download Python 3.12 or higher on the computer.

Open the folder, run the command src\main.py

I go to the source, I open the main.py and I run it in Python and test it.

I have a fully open license.

In the shell –

A screen shot of a computer

Description automatically generated

Open the shell- find the folder with **the source**.

**The source.**

# Birdfeeder app

#

# to start go to folder birdfeeders and type

# python.exe .\src\main.py

#

# Copyright (c) by

#

Something is inherently nedodelano here... If I have 60 % initial surviaval rate , then with the presence of the feeders I believe it becomes

If it was 100, it becomes 138... what is this survival rate?

There were 60 birds, we inserted HOW many birdfeeders that it became 98?

במילים אחרות, האם זה מבוסס? Conclusion – I Must read the 2 articles.

יש בזה משהו, אי אפשר להתכחש. אנחנו לא ילדים קטנים. צריך לעמוד מאחורי מה שאנחנו אומרים.

**Rules for input**

In this application, we solve two problems:

1) determine the extent of attractiveness of the forest in the eyes of the human visitors as a function of the number of birdfeeders, implying that a greater amount of birdfeeders attract more birds, which attract more human visitors as a result.

2) Calculate the survival rate of birds in a forest containing birdfeeders , based on the study by Millikin University which stated that presence of feeders affects the birds population to be higher by 38% than in a forest without birdfeeders

Inside the application, I declared the following variables -

BIRDFEEDERS – for number of birdfeeders in the forest,

SURVIVALRATE – the input that we give to the program

BIRDSURVIVALRATE - the calculated survival rate as a function of the number of birdfeeders

FOREST ATTRACTIVENESS – a statement which describes the extent of attractiveness of the forest as a recreation site for visitors as a function of the number of the feeders

As for the first problem, To activate the Forest Attractiveness calculator, we insert the number of birdfeeders in the forest subject of study and determine the extent of its attractiveness in the eyes of the visitors, if a number under 0 is inserted, the system gives an error, if the number of feeders is less then 3, the forest is not considered attractive, the threshold is 6, below it when greater then 3 the forest is considered moderately attractive, while a value greater then 6 returns a high scale of subjective attractiveness.

Regarding the second problem, to determine the survival rate of birds under the existence of birdfeeders, the user must insert an existing survival rate of birds in the input area (prior to the installation of the birdfeeders), and the function multiplies it by 1.38 to get the final survival rate of birds.

If upon those two procedures and subsequent solutions we desire to continue with our calculations, aca inserting new input, to the question that follows “ new calculation yes or no?” we should insert y for yes, and then the cycle continues, otherwise we answer n for “NO”, and the process halts and we get eventually to the end.



**Figure 3**

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**References:**

In this work, I used the following web resources:

The Benefits of Bird Feeding - https://www.perkypet.com/articles/the-benefits-of-bird-feeding

**Wilcoxen E. (Biology dep., Millikin University) Horn D. et al,** Effects of Birdfeeding activities on the population of wild birds (2015) - Conservation Psychology. Vol 3. *www.ncbi.nlm.nih.gov/pmc/articles/PMC4778448/pdf/cov058.pdf*

1. Benefits of birth feeding [website]<https://www.perkypet.com/articles/the-benefits-of-bird-feeding> (10/02/2024) [↑](#footnote-ref-1)