NSERC

PROMOSCIENCE

Coding with Python!

>> HELLO STUDENTS!

>> JOIN US FOR AN EXCITING JOURNEY

>> TO BECOME A PYTHONEER!

Lakshmi Preethi Kamak D
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ARMSTRONG PUBLIC SCHOOL

Lakehead UNIVERSITY

DaTALab

NSERC

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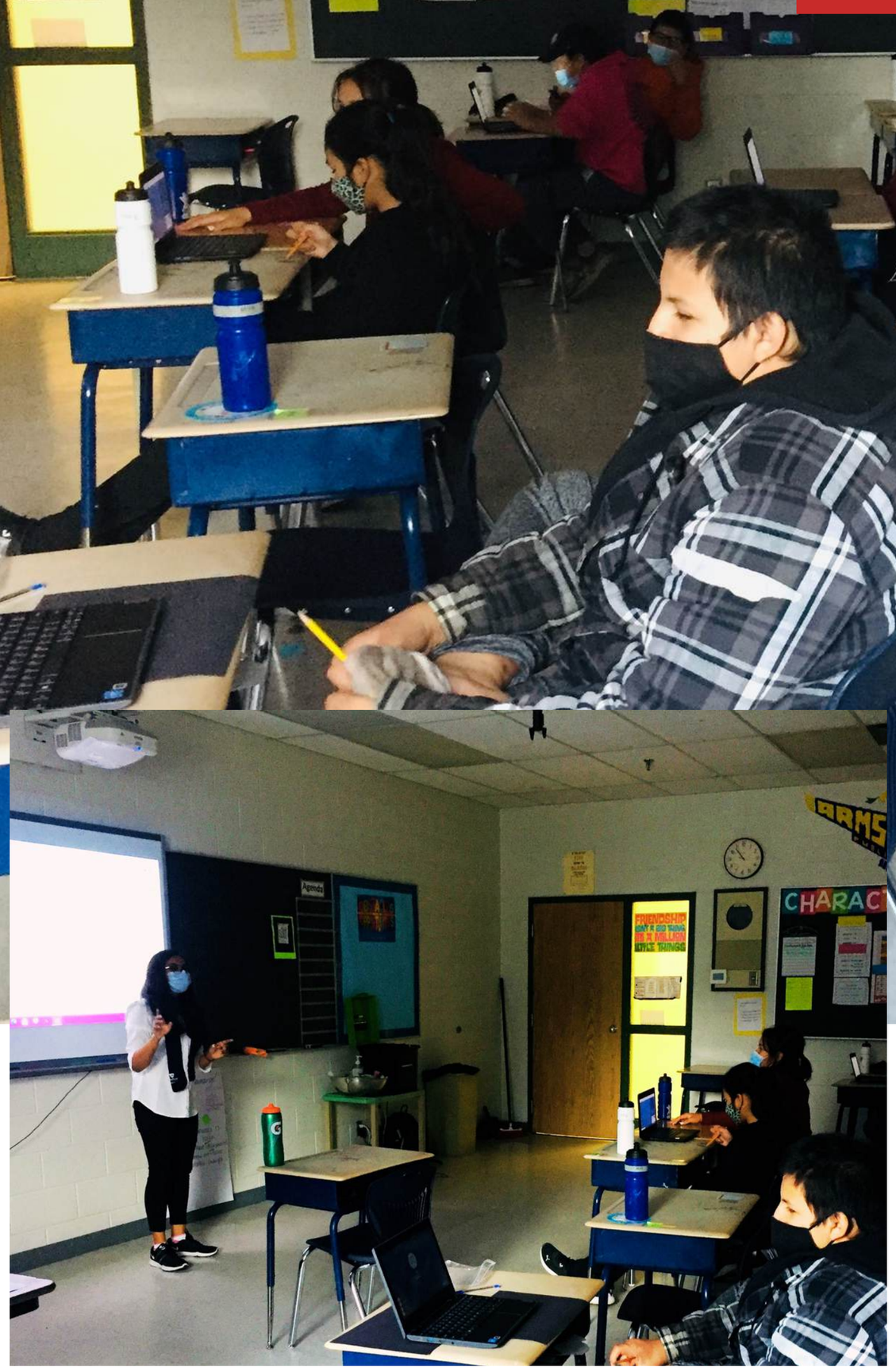
Coding with Python!



LECTURE - 1

Graduate student Ms Lakshmi Preethi Kamak provided lectures and lab practice with the help of mentor Ms Lisa Harris and the teacher Ms Charlene Frankavitz. Students worked as teams of two to complete all the given exercises on their laptops and actively participated in the quiz. They understand the basics of programming, introduction to python language, print strings and numbers and variable usage.

FUN ACTIVITIY

The fun activity was conducted post the lecture. The activity was designed to encourage the student's pattern recognition thinking which is one of the essential computational thinking components. They also received goodies from Lakehead University for their fantastic performance.

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OCTOBER 26, 2021, 10:30 AM - 12:00 PM
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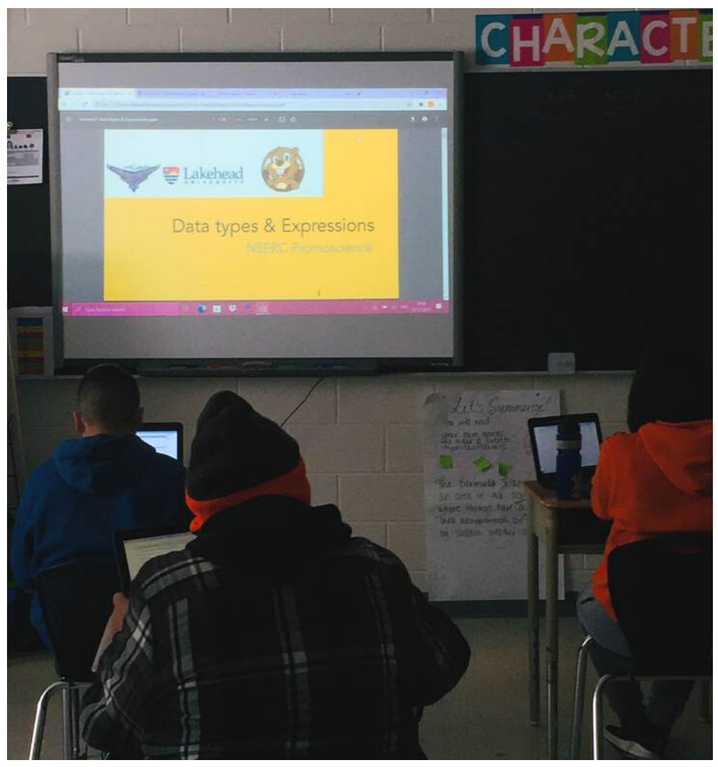
>>>Hello Beavis



LECTURE - 2

Lectures and lab practice were provided by graduate student Ms Lakshmi Preethi Kamak, she was assisted by the new classroom teacher Ms Courtney. Students recalled the previous lecture concepts. They enthusiastically welcomed the new mascot and named him "Beavis". They executed all the lab exercises on their laptops on the python console. They have an understanding of the basics of data types and expressions. D2L instructions sheets were supplied with a brief introduction to the website.

FUN ACTIVITIY

The fun activity was conducted before the lab practice session as an ice-breaker. The activity was designed to stimulate the student's problem-solving skills. They also received sweatshirts as goodies from Lakehead University for their amazing performance.

HIGHLIGHTS

The environment setup and the check of all laptops were completed the previous day to ensure a smooth event. Lisa brought in oranges for the students and distributed them before the lecture. School administrators Neena and Volunteer Ben helped coordinate the event by helping students and encouraging them to participate.

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NOVEMBER 23, 2021, 10:30 AM - 12:00 PM
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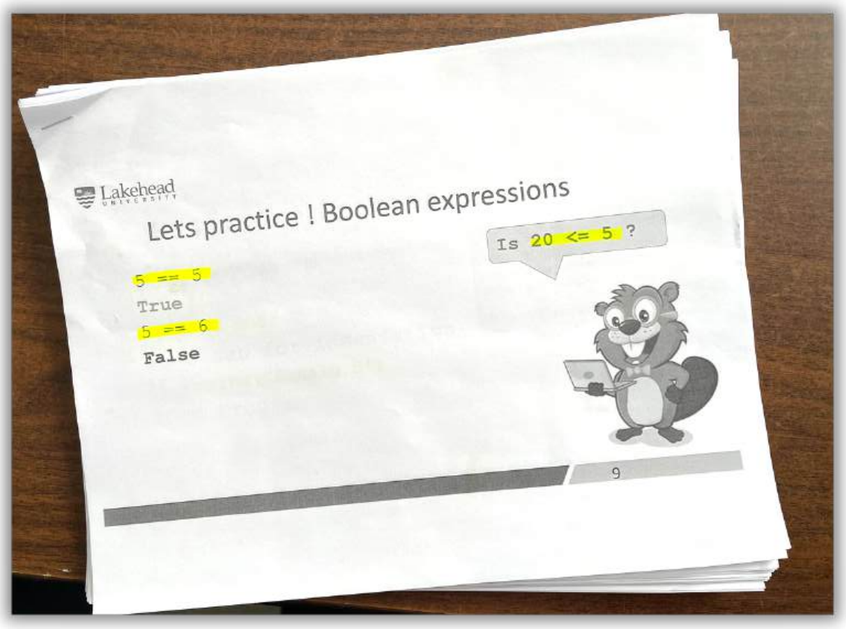
LECTURE - 3

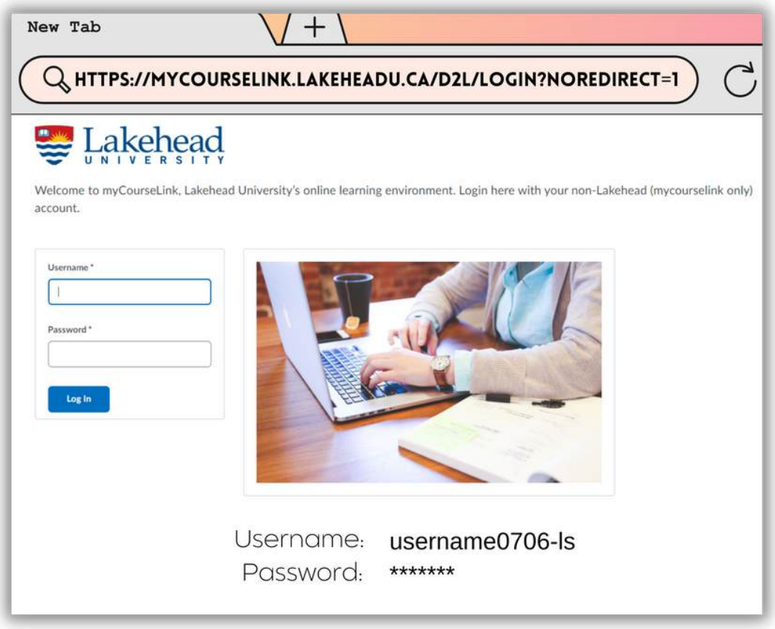
Graduate student Ms Lakshmi Preethi Kamak provided lectures and lab practice. The Python console with a bigger font size was set up for a clearer working environment for students. Students recalled the previous lecture concepts on Data Types and worked on "Conditional Execution" exercises. They were able to focus on coding with the help of lab exercise handouts. The Niijii Mentor, Mrs Lisa Harris, set the Christmas spread for the students and distributed goodies like backpacks and stationery after the lecture.

PRINTABLES



Lab exercises handouts:
This enabled students to see the instructions clearly and expressed interest in coding at their own pace.

Stickers and File labels:
On the successful completion of the exercises, students received stickers for their course files.



Cue Cards:
D2L login information for each student was distributed as cue cards for a smoother login process.

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DECEMBER 14, 2021, 10:30 AM - 12:00 PM
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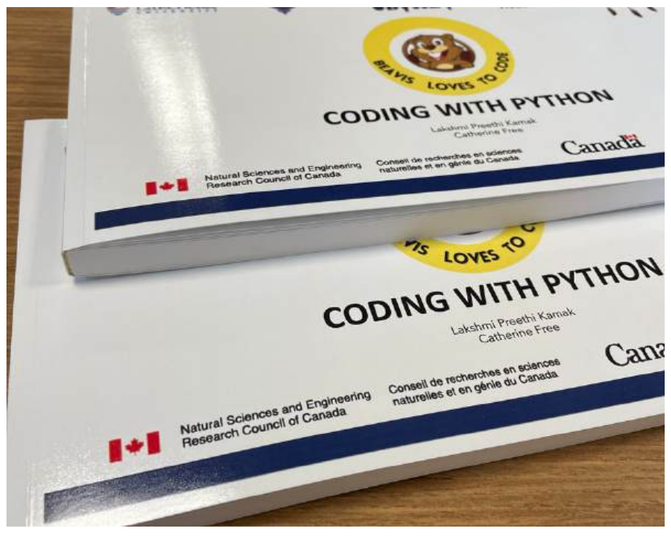
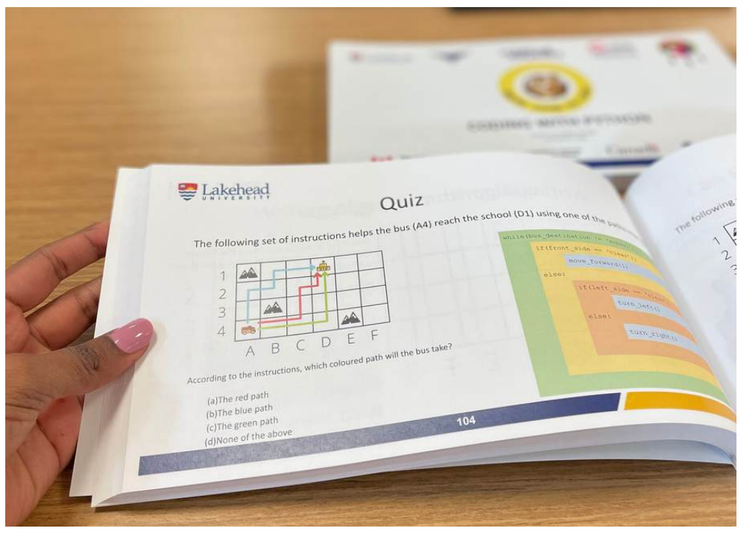
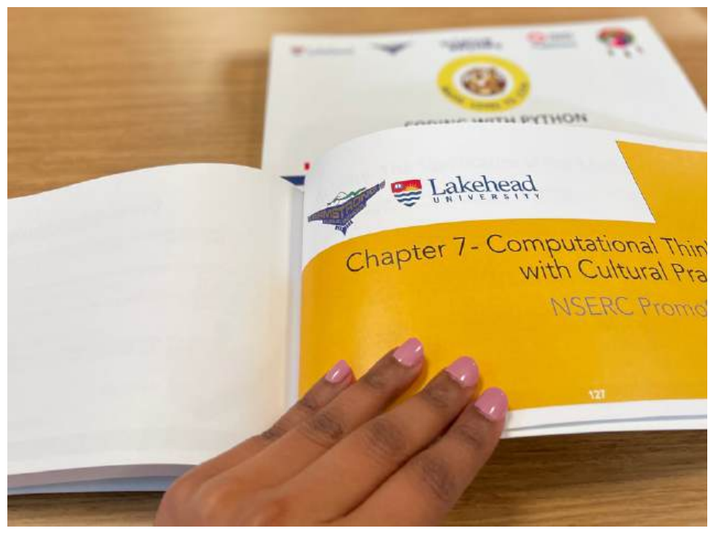
LECTURE - 4,5 - Online Classes

Lectures and lab practice on topics Functions and Loops were provided online by graduate student Ms Lakshmi Preethi Kamak. The teachers coordinated with the students' lab setup; Online classes were adopted due to the COVID-19 guidelines and unsafe driving conditions during the winter. Students recalled the previous lecture concepts and were able to code along with the instructor's and teacher's guidance. Spatial map-based computational thinking algorithms were introduced to the class. Ms Preethi also conducted quizzes based on algorithm results to evaluate students' understanding. The teachers are now familiar with the blended learning/teaching environment. The classes are now more structured, and students have assimilated into the blended learning environment. The course's intended "Coding with Python" syllabus was completed on March 24, 2022.

LAB INSTRUCTION MANUAL







Lab Manual:

After completing all the course materials, a book format that serves as a lab manual was developed. The Book has around 150 pages with seven chapters and interactive computational thinking activity chapters.

Repurpose:

The Lab manual is designed to repurpose course materials for the upcoming academic years and easy reference for students. The Lab Manual also allows students to revisit concepts at their own pace and convenience.

Cultural Context:

Ms Preethi also introduced an additional part for the Computational thinking lessons in the Book. It also includes a Poster activity that encourages students to contemplate their contribution to society using Computer Science. Topics like the three sisters' gardening were adapted in the Book to add cultural context for the students.

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LECTURE 4 - MARCH 10, 2022 ,LECTURE 5 - MARCH 24, 2022, 11:00 AM - 12:00 PM
LAKEHEAD UNIVERSITY, THUNDER BAY

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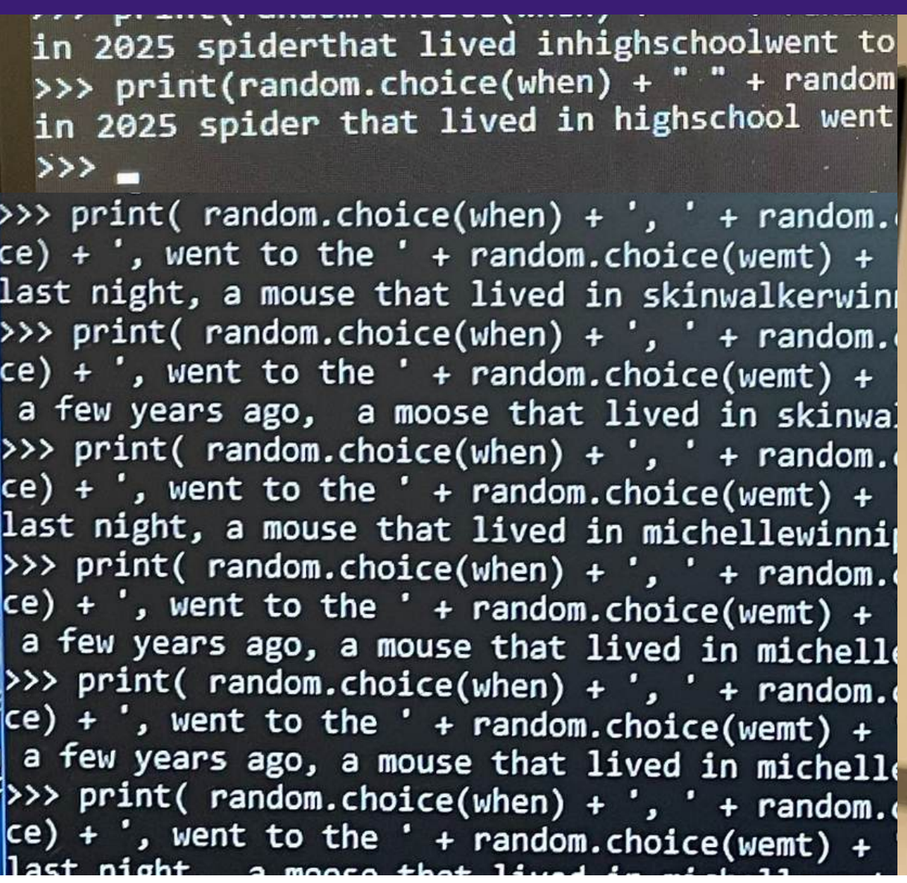
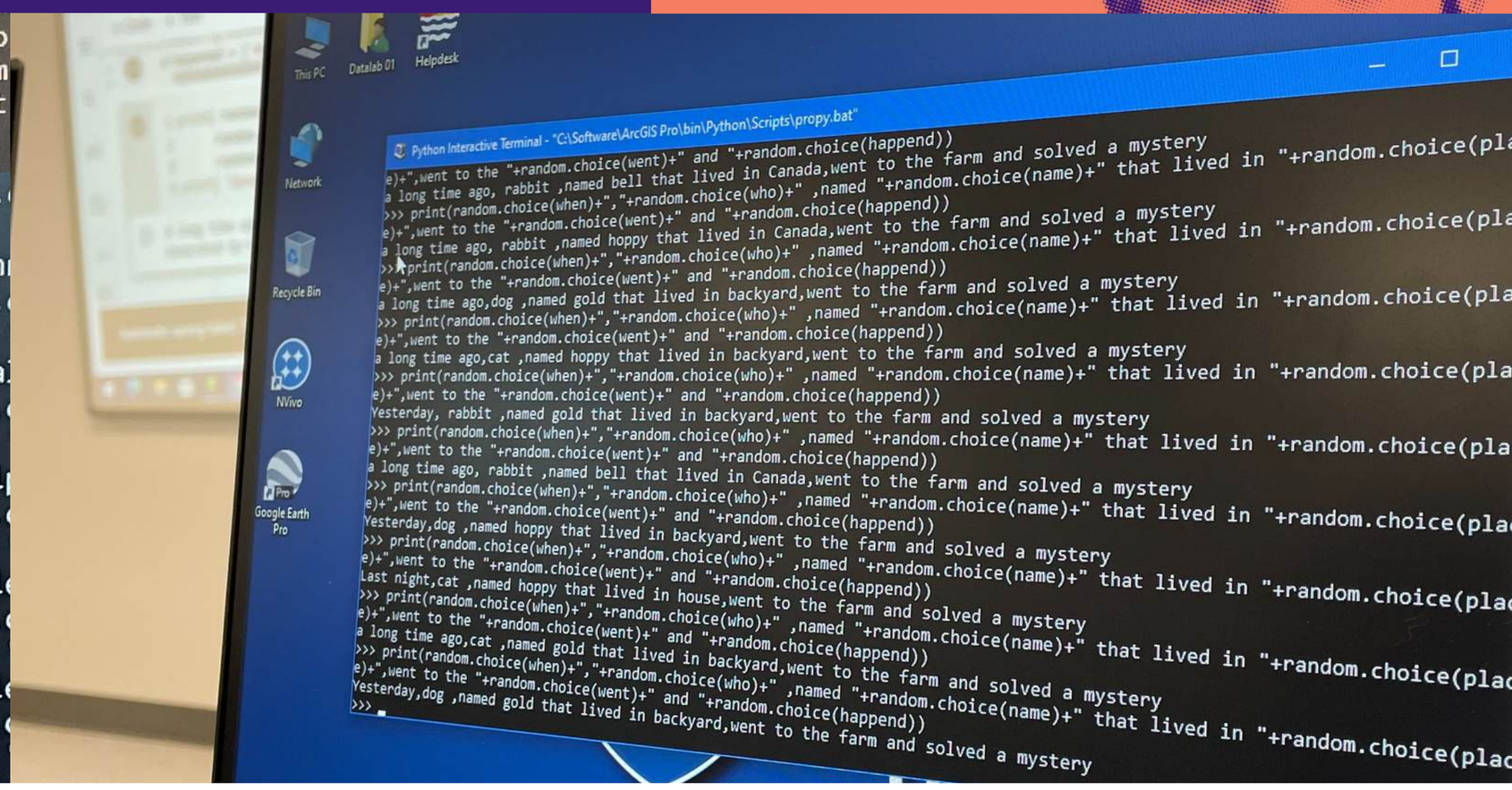
Science Odyssey

Coding with Python!

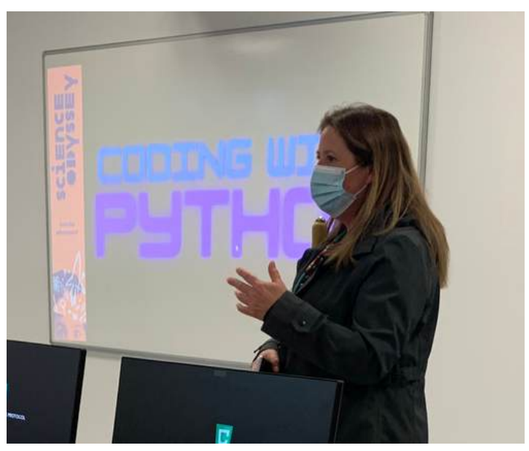




Science Odyssey

Welcome Speech:

The Science Odyssey event was a unique opportunity for the Armstrong School students to visit Lakehead University and explore the post-secondary school setting. The students arrived at the Grad Lounge in the CASES building for refreshments, and **Dr Vijay Mago** delivered a warm welcome speech to the students and staff from Armstrong Public school at **DaTALab.**



The **Vice-Provost of Indigenous Initiatives**, **Denise Baxter**, introduced Darrick Baxter and thanked our students for joining us on campus for the culmination of the Python and Computational Thinking work they have been doing with Ms Preethi and Dr Mago.

Guest Speaker:

Darrick Baxter, owner of **Ogoki Learning Inc**. is an Indigenous-based company that develops apps geared towards Indigenous learning and language revitalization. He spoke with the class about opportunities in technology-based jobs and careers, recruitment and pathways into the workforce with computer science.

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MAY 12, 2022, 10:00 AM - 3:00 PM
LAKEHEAD UNIVERSITY, THUNDER BAY

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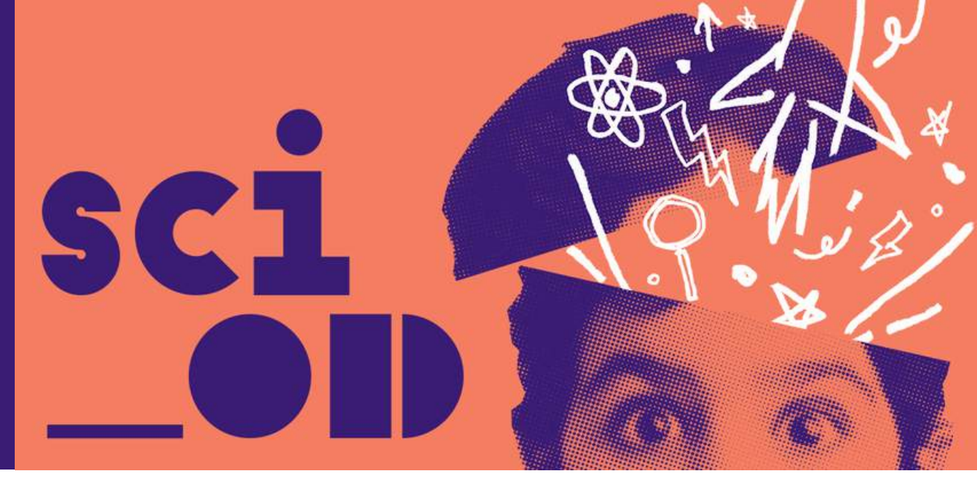
Science Odyssey

Coding with Python!



Inspirational video: AI applications were shown to the student to demonstrate multiple careers that use computer science in the field. The students were impressed to see the unimaginable applications of AI and were curious to explore the idea.

Coding Exercise: Students worked on a coding exercise to randomly generated stories using the python random library and lists. Graduate Students from DaTALab volunteered to assist the students in coding and error debugging. This activity provided a unique one-on-one interaction and guidance for the students. The lab set-up also provided them with a calm environment to focus on the coding experiment, which is usually not the scenario in schools where they do not have a dedicated computer lab and are required to share laptops and work from their classrooms.

Certificates & Books: Certificates of participation were designed with Beavis motifs and handed out to all students in attendance. The students were also given the lab instruction manuals that summarised the course materials and computational thinking activities related to cultural practices.

Celebrations: To congratulate the students, a pizza party and cake were arranged along with a hot entree and salad bar for the students to enjoy. Students visited the residence cafeteria, where they had their hot food and beverages. Lisa Harris gave a thank you talk to the students and a big congratulations for their accomplishments. For the trip home from Thunder Bay, snacks were given so the students could have a comfortable ride home to Armstrong.

Campus Tour: Ms Lisa Harris led the students to the Indigenous Initiatives office and Indigenous Student Services Centre on campus. Computer science labs at ATAC Building were shown to the students where they could one day be doing their school work, and Dr Vijay Mago explained the different Pathways to Computer Science.

Cultural Packages: The cultural packages included one package of flowering tobacco, sacred medicines- sage, cedar and sweet grass that was grown locally by **Lakehead University's Elder in Residence, Gerry Martin and Elder Mary Lou Auger**. 3 Sisters' seeds from the student's lessons - squash, corn and beans were also included. **Ms Catherine free** gave an overview of the cultural packages.

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MAY 12, 2022, 10:00 AM - 3:00 PM
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Coding with Python!

CODEATHON 2022

Calling all Pythoneers!

>>> Join us for an exciting codeathon on

May 31, 2022

>>> Get a chance to win amazing educational toys!

Click below to login to your Programming Fundamentals course at D2L for more information

https://mycourselink.lakeheadu.ca/d2l/login?noredirect=1

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MAY 31, 2022, 9:30 AM - 12:00 PM
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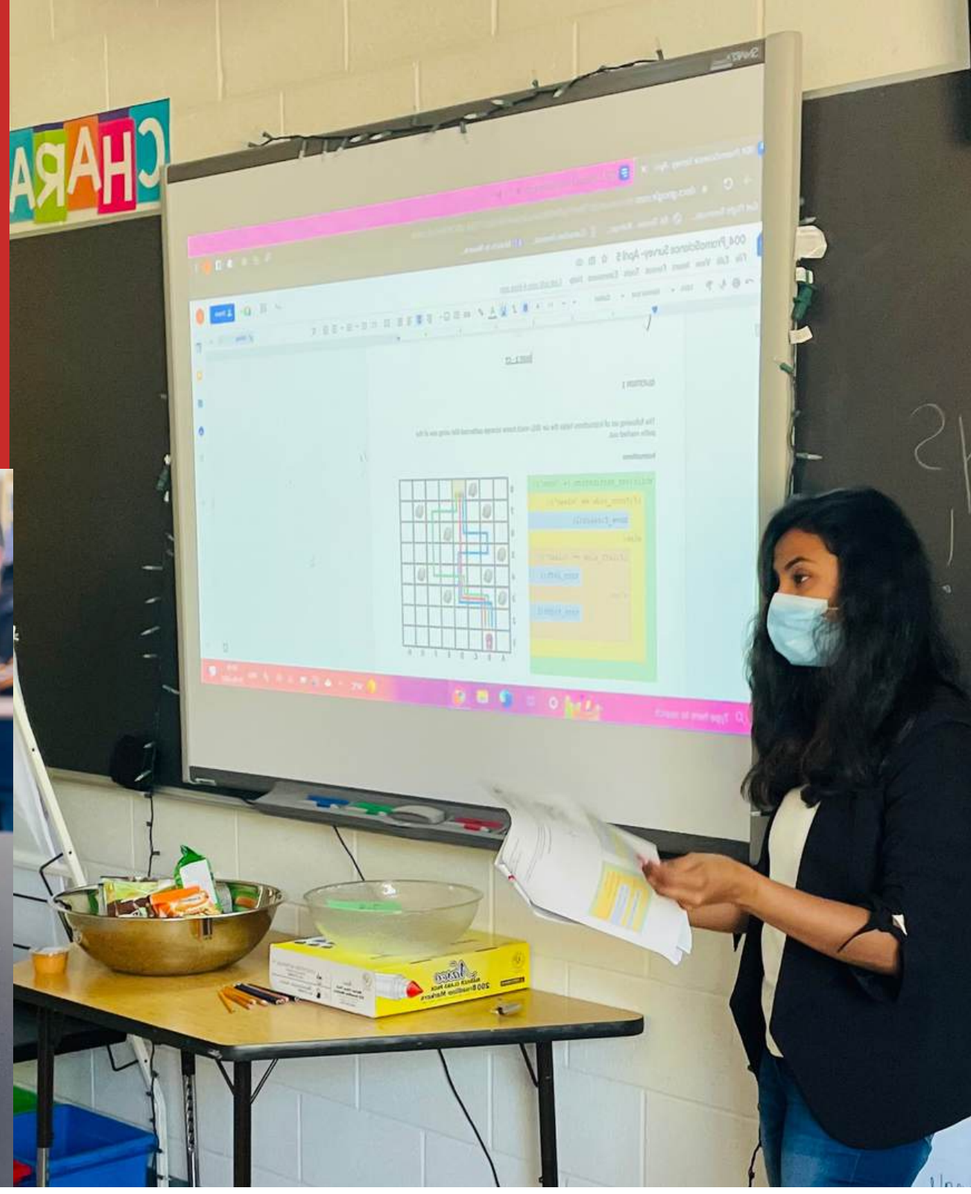
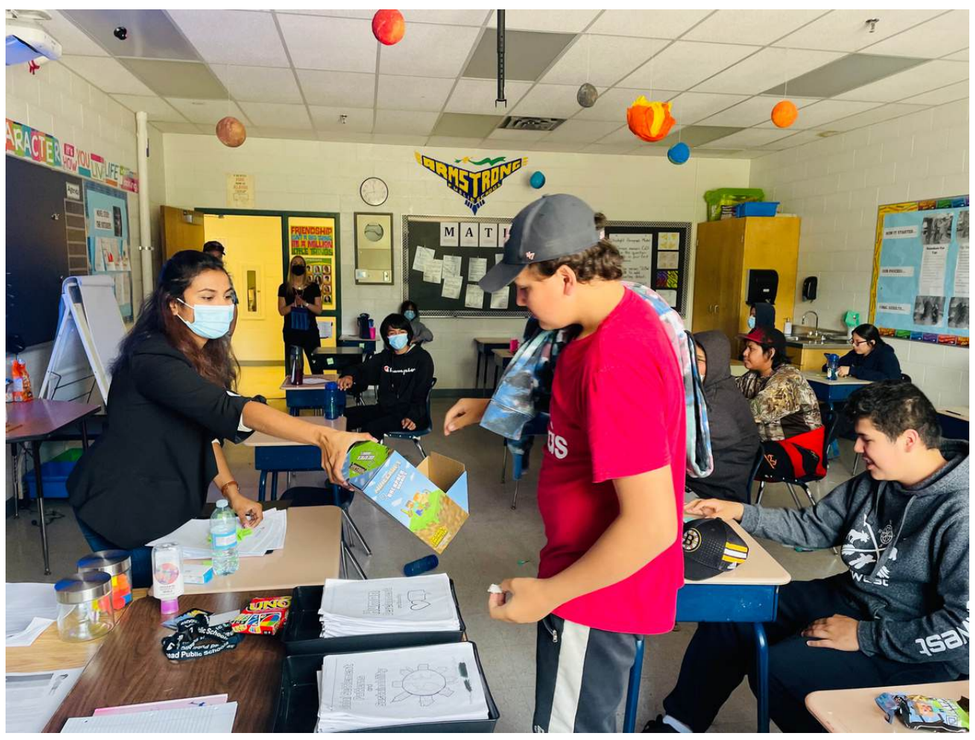


Promoscience Exit Survey

To commemorate the successful end of the "Coding with Python" course, Ms Lakshmi Preethi Kamak conducted an exit survey with the students. The survey is approved by Lakehead **Research Ethics Board**. It is designed to evaluate the student's computational thinking abilities based on Python teachings. The feedback was also collected on the Blended learning experience to assess student interests and challenges. The study and the consent form were also explained thoroughly to the participants. After fully understanding the survey, the students were given a choice to agree to take part in the survey. Twelve students participated in the survey. The survey was conducted in three parts to reduce test fatigue. Interactive fun sessions were conducted to engage the students. Students who completed the study took part in the raffle and won Minecraft toys.



Cultural Activity Book: The Niijii Cultural Student, Ms Catherine Free distributed a cultural sticker activity book that emphasizes the grandfather's teaching, the medicine wheel, the three sisters' gardening and cultural practices related to Modern stem careers. She also conducted a series of fun activities to keep the students engaged and distributed small giveaway candies and snacks. Lakehead University goodie bags were also gifted to students for participation and encouragement.

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MAY 31, 2022, 9:30 AM - 11:30 AM
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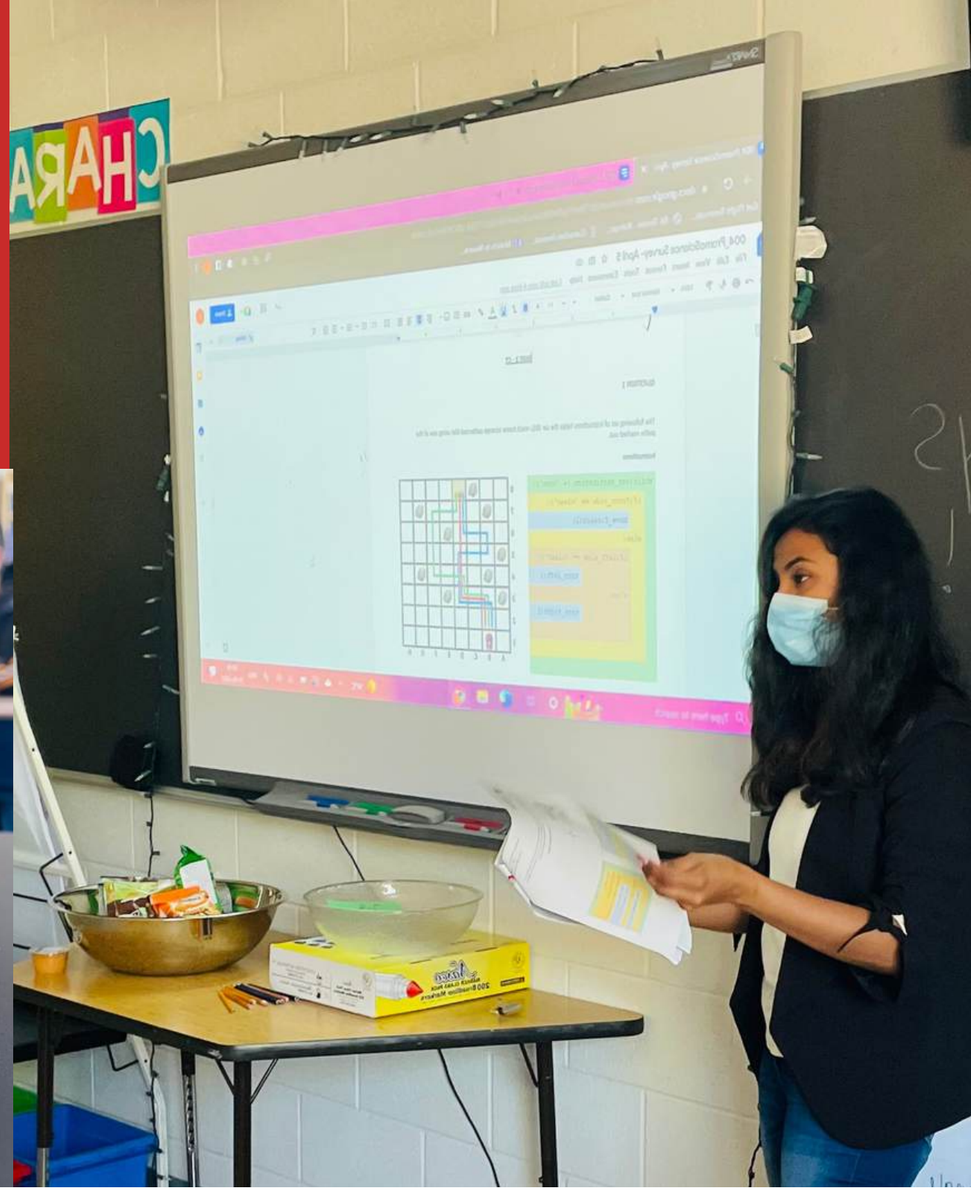
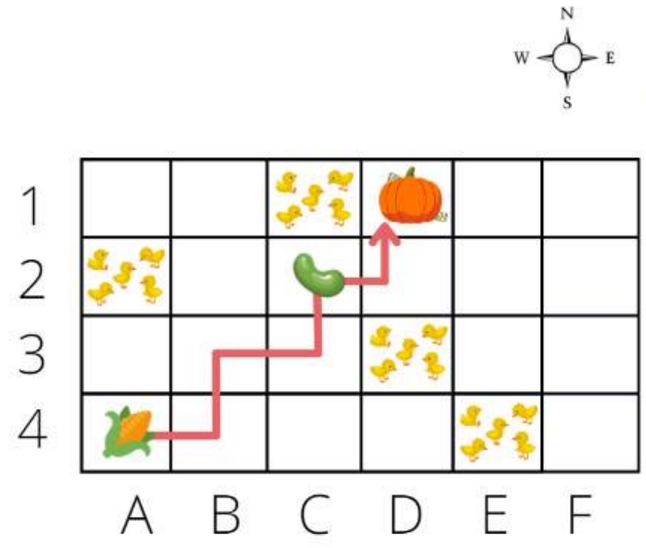


Lakehead UNIVERSITY

Exercise

7) Which algorithm gets the corn to the beans and squash using the red path?



A)
```
while(corn_collects_all_sisters
== true):
    if(block != 'chickens'):
        move_forward(1)
        turn_north()
        move_forward(1)
        turn_east()
```

B)
```
while(corn_collects_all_sisters
== true):
    if(block != 'chickens'):
        move_forward(2)
        turn_east()
        move_forward(2)
        turn_north()
```


```
print(' Hello World ');

name='                    ';
print('My name is',name);
```

```
 a few years ago, a mouse that lived in michellemontreal, went to the farm and found a secret key
>>> print( random.choice(when) + ', ' + random.choice(who) + ' that lived in ' + random.choice(name) + random.choice(p
ce) + ', went to the ' + random.choice(wemt) + ' and ' + random.choice(happened));
 a few years ago, a mouse that lived in michellewinnipeg, went to the school and found a secret key
>>> print( random.choice(when) + ', ' + random.choice(who) + ' that lived in ' + random.choice(name) + random.choice(p
ce) + ', went to the ' + random.choice(wemt) + ' and ' + random.choice(happened));
```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