Open:UK Ezine

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Issue 7

A message from the Ed

Amanda Brock

Hi!

"With great power comes great responsibility". If you are a fan of Spider-Man and Peter Parker, you may already know this phrase.

Leadership, as we see in lesson 7, is something that is earned and in open source software, leaders and their power can be kept in check by forking. The fact that open source software is freely available to use and can be replicated by a community means that the community, who create the software through their contributions, retain power over it.

If a community doesn't like where a project's leadership takes the code, then they can move the code to a new project, with a different name. "Code talks" in open source software. That means that when we have a fork, the project which receives the most code commits from developers, and is the most popular after the fork, becomes the leading project, even if it was once a fork.

Leadership is important in communities and projects. A lot of work has been done in open source projects to ensure that we have good leaders who represent as diverse communities as possible and that everyone can feel that they can belong in open source communities.

Amanda
CEO, OpenUK

Ask Ashleigh

Ashleigh Monagle

Inclusion - There is always room for one more!

You will remember that earlier we talked about Belonging and how we should accept everyone. Accepting people is only part of the puzzle, and I want to share a story with you about how you can become an includer!

Have you ever been in a situation where a group of people have something you didn't or were playing a game you wanted to get involved in? That feeling is one that everyone experiences and, when we are not welcomed into the group or able to play games with others, we call this feeling being excluded. Of course, that may make people feel sad.

Being an includer is all about making people happy and having fun. An includer is someone who welcomes everyone and thinks of others. My top tips for being an includer are:

- Be aware of the people around you and invite them in.
- There is always room for one more!
- Everyone is different and deserves to be included.

Ashleigh

Digital Inclusion Lead, OpenUK

Sustainability

Responsible consumption and production

Previously, we explored how the current economic model rewards the perpetual growth of production and consumption.

This has led to many mechanisms that encourage us to buy more, even when we don't need to do so, and, in many cases, trying to convince us that our happiness and importance is directly linked to how much we consume.

Let's explore some of these mechanisms so that we can avoid being tricked by them:

Planned obsolescence: This is when a product that we buy is designed to fail after a short time, so we go back and buy a new one. Think about how quickly our phones slow down or lose battery life. Or how quickly shoes and clothing go in and out of style, only to come back into fashion later.

Influencing: This is when ads on television or people you follow on social media try to convince you that buying a certain product or service makes you more beautiful, more important, or happier. The car industry notoriously relied on status selling for many decades to encourage everyone to own their car. But does that make sense when the average car sits parked and unused 95% of the time, taking up so much space around the places we live?

Greenwashing: This is when brands and influencers try to convince you that buying their product makes you more green, more ethical, and more sustainable. Remember that more often than not, the most sustainable purchase is the one you don't make!

Plastics Recycling: Yes, we need to recycle. But bold claims around packaging being recyclable are often misleading. Greenpeace has already demonstrated how in the UK, only 10% of the plastic we recycle actually gets recycled. The rest gets burned, dumped in landfills, or worse, oceans. Second, plastic can only be recycled once or twice before it becomes unusable. So, the most sustainable choice is to avoid plastic altogether and choose reusable and refillable bottles, bags, and containers.

Of course, not all consumption is bad - we need to buy things to live and sometimes just because we want to. So when possible, explore buying pre-loved, borrowing, or repurposing what you have when you can. These choices will always be more sustainable than buying new stuff.

Keep Coding!

Christain

Chief Sustainability Officer, OpenUK

Please Miss Boal

Back of the net!

In this Lesson, the program uses the compass to find a target that has been hidden. It's a fun game to play, but are targets really best when they are hidden? Target setting or goal setting is a powerful tool for a programer to learn as "People with goals succeed because they know where they're going." — Earl Nightingale

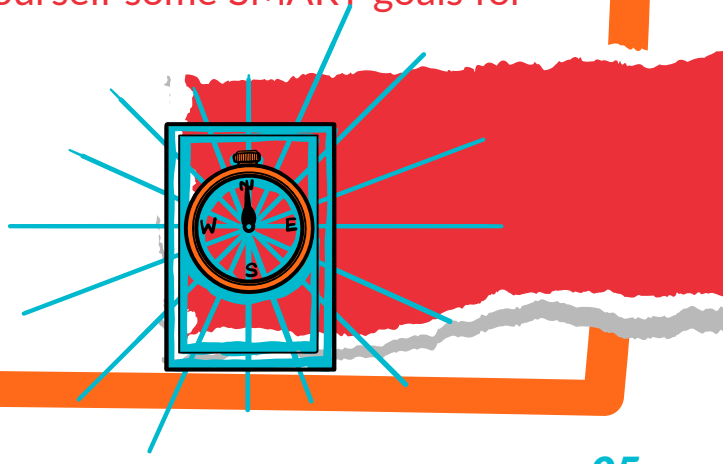
Goal setting allows you to take stock or measure progress and provides a benchmark for determining success. The most common method of setting goals is called SMART and these are defined by https://us.humankinetics.com/ as follows:

S = Specific. Your goal should include details of what you want to accomplish.
M = Measurable. You should be able to measure your progress and determine whether you've accomplished your goal.
A = Attainable. Your goals should challenge you but they should not be too easy or too hard.
R = Realistic. You should be able to reach your goal if you put in the time and effort and have the necessary resources.
T = Timely. Your goal should be useful to you at this time in your life and can be met in the time allotted.

Now that you have programed and played your game with the glove, the challenge for this Episode is to set yourself some SMART goals for developing your skills as programers.

Pam

Computer Science Lead, OpenUK



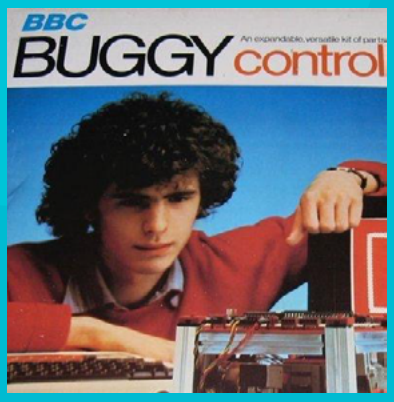
Open Source Hero

Alexis Richardson

When I was 11 in 1981 the BBC did something incredible and became a computer company. We knew it could not last. But for a short time, they made the most important computers in the world. Forget Apple and Americans. The best computer was the BBC Micro.

We didn't use the BBC to surf the Web - that didn't exist yet. Instead, we had GAMES. The best ones were on the BBC. Pacman, Scramble, Monsters, Asteroids. They are so good that old people still meet up in secret locations to play them today.

Writing games was more fun than playing them. Young people wrote the best games and shared the code with each other. Programming was cool. My friend Jeremy wrote books about it. Here he is looking like a 1980s rock music guy:



Today computers are everywhere and can do anything. Phones, TVs, cars, drones, 3D printers all run code. And the best code for this is FREE. You can use it and change it and remix it into your own program to do whatever YOU want. And then share it just like we used to with games.

We call this "open source code" and it is awesome.
Oh and you are working with a spin off of the BBC Micro in your digital learning with OpenUK, the BBC micro:bit.

Alexis
CEO and Founder of Weaveworks

Industry

A Career in Open Source

The Mozilla Foundation was founded in 2003 and is part of the Mozilla Corporation today. It coordinates and integrates products, technologies and programs that make the internet healthier for everyone with a people focused approach to the open internet.

It is home to a number of digital products with the Firefox browser discussed in Lesson 7 being the most famous product it looks after. It's fox logo is one of the most recognised symbols in open source.

Firefox evolved from the Netscape browser which was one of the first internet browsers.

Mozilla promotes openness, innovation and opportunity online and focuses on the internet and open web and serves a role in open source as one of the most well-known Foundations.

Mitch Baker, who initially trained as a lawyer, was one of the founders of the Mozilla Foundation and has been its President and Chairwoman at various stages. In 2005, she was listed by Time Magazine as one of the most influential people in the world. Today Mitch is CEO of the Mozilla Corporation.

Mozilla Foundation

Open Data

Rubbish in, rubbish out!

There is a famous saying to do with computers: garbage in, garbage out (*or rubbish in, rubbish out)*. This is the idea that you will get flawed results if you feed a computer with flawed data. Recently, the phrase has been used in connection with *algorithmic bias*, where technology makes decisions about you, or for you, based on assumptions that are sometimes wrong or unfair.

The same can be true of Machine Learning – a form of Artificial Intelligence (AI) where systems learn from data. If an AI learns from biased or prejudiced data (in the same way that many humans do), then the decisions taken using it will have the same flaws. For example, this article says that in one study, "by teaching an Artificial Intelligence to crawl through the internet – and just reading what humans have already written – the system would produce prejudices against Black people and women."

As technology develops and we use AI more to make decisions, we need to think about how we ensure that the data they work with doesn't lead to prejudiced outcomes. If computers just repeat the discrimination of humans, then society does not get better. There are tools available that are designed to help make sure this does not happen. Have a look at Google's Responsible AI Practices guidance, IBM's Fairness 360 tool, and the ODI's Data Ethics Canvas. These all align with what you have learned about the Sustainable Development Goals and reducing inequalities.

Learn with Lowena

My GCSE in Computer Science

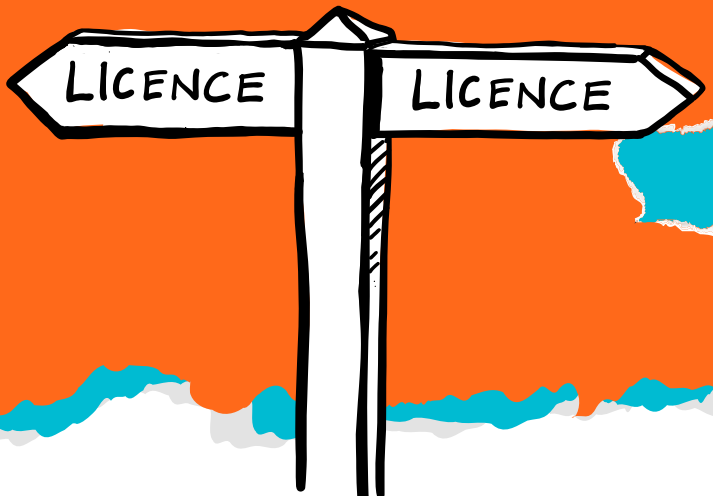
So, what's GCSE computer science like? Wondering if you should take it? I took my GCSEs back in 2018 and computer science was one of my favourite subjects. The AQA course included a practical programming project and several written papers.

The written papers contained theory, including details about binary and hexadecimal, details about computer networks, and the ethical, legal, and environmental impact of technology. I highly recommend taking it if you are interested in the wider aspects of computer science.

Here is some general exam advice as someone who's a seasoned exam taker (seriously, I've lost count at this point): exams are there to test what you don't know. Sounds obvious, right?

But often people (and I'm guilty of this) don't want to face up to what they don't know and just keep going over what they do know. So make sure you take on the challenge and do it in a smart way by checking what you don't know and learning.

It's okay to get questions wrong- it shows you what you don't know and guides you as to what you need to learn.



Lowena

Student, Cambridge Univeristy

Nasa

Chris Mattaman

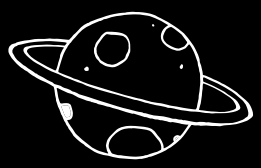
Capturing attention while it's there

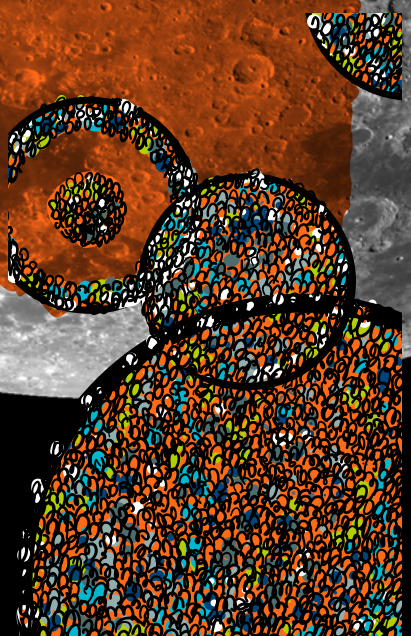
As it turns out, not everyone is paid to work on open source, and some people are simply there to help out in their free time, but you can't guarantee that free time will be there next week or next month. Come to think of it, you can't guarantee that if you are paid to work on open source today or in any other job, that in a year you will also be paid to do so.

The temporal nature of your open source contributions relates to the principle of capturing your community contributors' attention while it's there, since it may not always be there due to financial constraints, or working another job, or simply due to time availability.

That's why the key to a healthy open source project and healthy open source community is to reduce the friction required to allow for open source contribution. In other words, make it as easy as possible for contributors to add code, documentation, help guides, answer questions, or simply capture someone's attention while it's there and then realize their contributions and record them in your software project.

You'll find the project lasts much longer, you'll build the community of folks that will maintain it long after you, and you'll reward them with value back for their important asset - time.





Chris

Chief Technology and Innovation Officer,
NASA Jet Propulsion Laboratory

Entrepreneur in residence

Matt Barker

A great example of an open source community?

The Raspberry Pi is a great example of a highly successful project. It combines hardware with software as a single package and is supported by a large number of software developers who all put open source development at the heart of the Raspberry Pi community. The project started as a simple kit that essentially provided a ready-made "single-board" PC running a desktop Linux operating system.

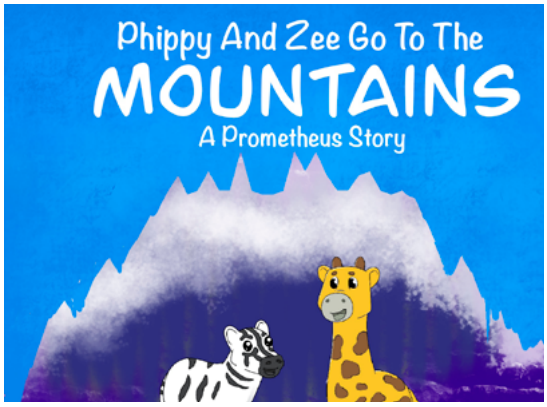
As you have learned, the Linux system is used by many developers for general coding and creating their own open source projects. The popularity of the Raspberry Pi, like the micro:bit, was essentially down to the package being very inexpensive which triggered a massive movement in people using it to learn coding.

This quickly grew and soon all sorts of free projects were appearing from developers who had built things using open source software. One of the most popular community projects using the Raspberry Pi is based around add-on sensor kits that can be used to create a home automation network. It is fair to say that the success of the Raspberry Pi and micro:bit projects have created ecosystems of cheap component hardware that run on open source software and are used to build a whole range of innovative home-based applications.

Matt
President & Co-Founder, Jetstack

Kubernetes

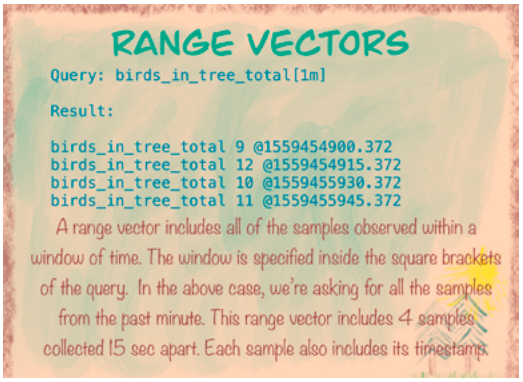
An illustrated guide, continued from ezine 6...



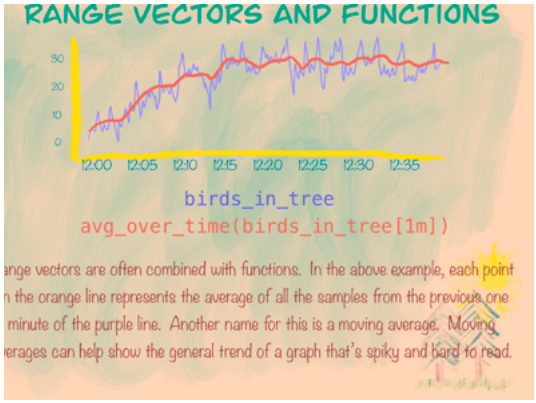
As Phippy and Zee hiked on, they came to a series of jagged peaks. Suddenly a hawk swooped down from the sky, scanned her eyes across the ridge, and loudly screeched a whole bunch of numbers.

"This is a Range Vector," explained Phippy. She can see all the samples as far back as you ask her to."

Suddenly the ground started to shake. Phippy and Zee jumped up in surprise as the shape of the mountain started to change underneath them. "What was that?!" cried Zee.



Phippy smiled and explained, "that was a function! Each function has magical powers to change the shape of the landscape. This one listened to the Range Vector and gave us a moving average."



Just then Zee looked down and saw that the once spikey and precarious landscape was now smooth and easy to walk on. "Wow, that makes it much easier!" said Zee.

Phippy and Zee came to the edge of a cliff. "Where did our path go?" wondered Zee. "Prometheus mountain didn't find any more samples, so our trail stops here," explained Phippy. "In about 5 minutes, this trail will be marked stale and disappear. We'd better climb down!"

"Good idea," agreed Zee. "But can we get a couple of Captain Kube's Cliff Bars for the trip home?"

Word game

G U I X E C Y A K P Y Q A A V A P V B G
C A P L Q O R B A M E K U L T G R K J W
Z B A K F E T R B O V R X L L N Y M P B
K C G E D T S C Z Y V G M F O I A P B Y
S J W A C O M M U N I T Y I I P Z F L H
S U E Z N C G M T D W F T S S F N O X V
E L S X V Q O R N P O A Q B O S M R M I
E C N E C I L A D R D R L V U I I K C X
R D V Q R D M B T N A A P F A C T O R O
G F Z G X I M R U N A U D R I F C I N F
E K E T N S N O A O R E S W O R B N Q E
D N T G E V F T V N X I P A E P D C V R
E I A P X G X O E S G S K N C C V R X I
A T R N L Q R J H R X E Z Q D O N E Z F
Y G A R S W J A F U F U Y B J M D M H D
M R P F D J O O T P V A K C L P Q E E J
C P E R K G Z E T B N E C I T A V N G N
H Y S O N P B A Y A K M F E F S P T D F
D L E I F C I T E N G A M M C S G V R K
S I O T B E I V S I Y Q X T L P P J Q K

Browser
Community
Compass
Degrees
Factor
Firefox
Fork
Foundation
GUI
Increment
Leader
Licence
Magnetic Field
Map
Mozilla
Naming
Permission
Product
Range
Scale
Separate
Target
User Interface

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Thanks for reading!

Contibutors

Editorial:

Amanda Brock – Editor @amandabrockUK
Georgia Cooke - Creative Director nuwcreative.com

Columnists:

Ashleigh Monagle - Ask Ashleigh
Pam Boal - Please Miss Boal
Cristian Parrino - Sustainability
Alexis Richardson- Open Source People
Mozilla Foundation - Industry
Chris Mattaman - NASA
Lowena Hull - Learn with Lowena
Matt Barker - Entrepreneur in Residence
Open Data - ODI https://theodi.org/

CNCF - Kubernetes An Illustrated Guide https://www.cncf.io/phippy/
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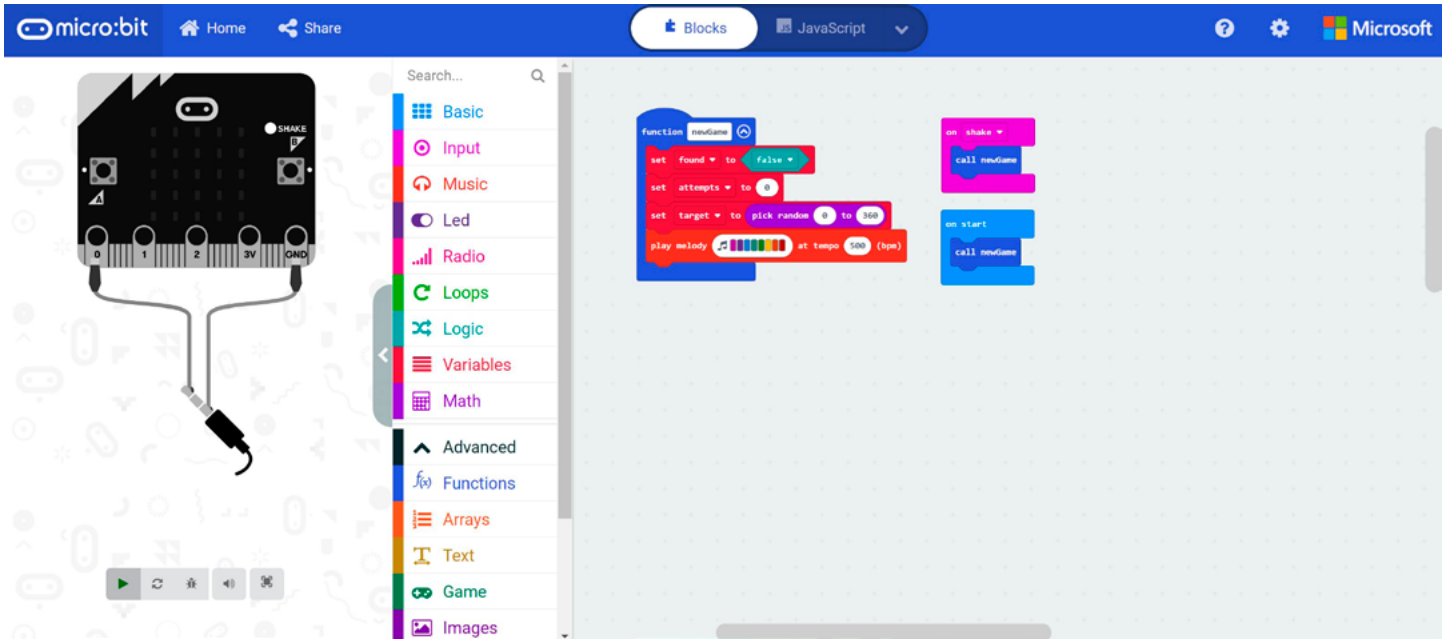

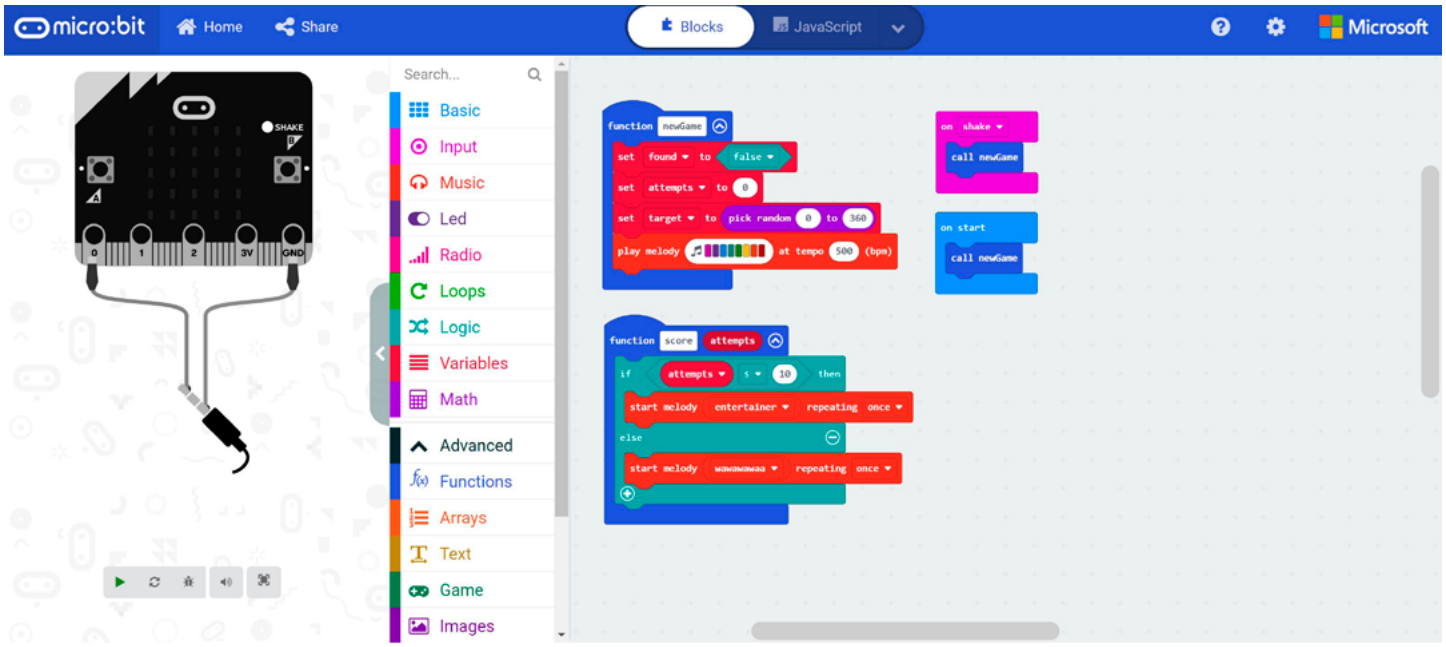

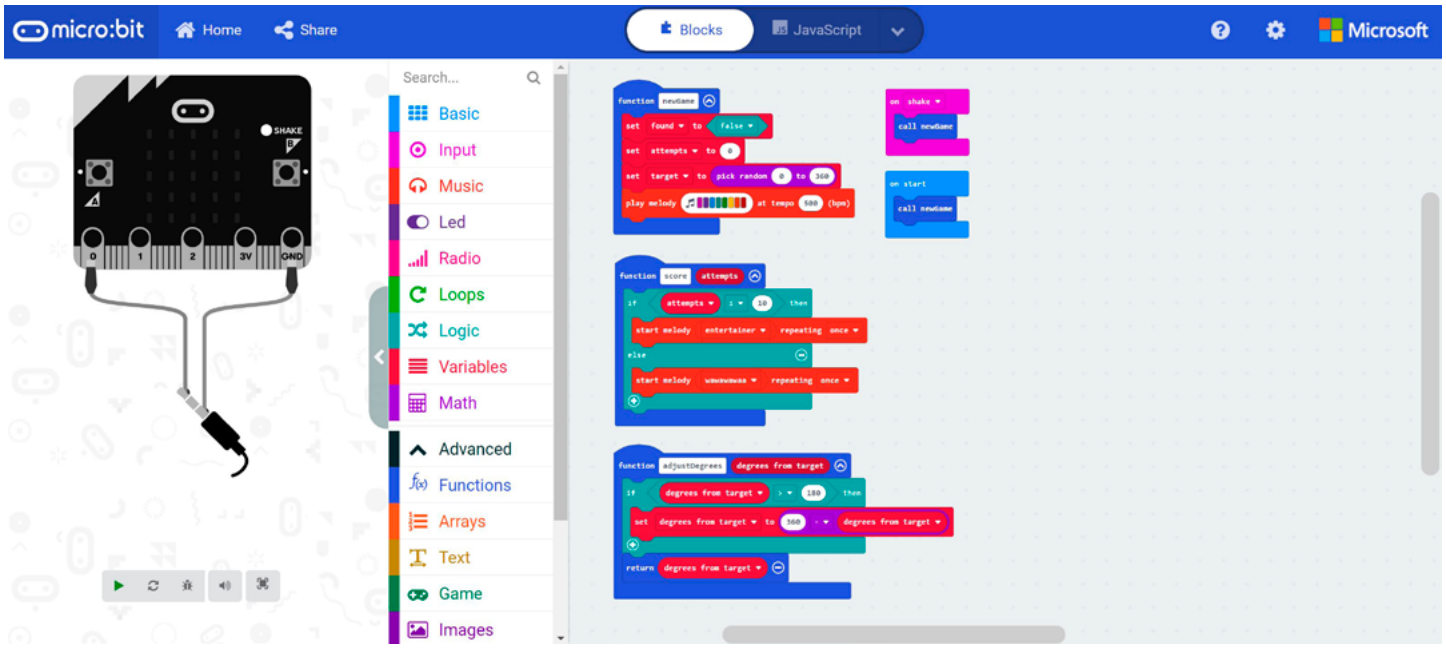

Instructions Lesson 7