Worksheet	Tourist Info
Activity	Create a mobile app in Scratch that recommends tourist attractions based on people's interests.
Objective	**Teach a computer to make recommendations** • The impact of training bias on machine learning systems • Ethical questions introduced by training bias in machine learning systems.
Difficulty level	Intermediate Although simple to implement, appreciating the objectives requires an understanding of the implications of machine learning so this is more effective as a follow-on to another project.
Time estimate	1 hour
Summary	Students will train a machine learning model to make recommendations to holiday-makers based on their descriptions of likes and interests. They will use this in Scratch to make a mobile app. They will then be guided to make this more biased, and to consider the impact of bias in AI.
Topics	training bias, recommendations, supervised learning

Setup

Each student will need:

	Print-outs	Project worksheet (download from https://machinelearningforkids.co.uk/worksheets) Blocks in Scratch scripts are colour-coded, so printing in colour will make it easier for students.
	Access	Username and password for machinelearningforkids.co.uk

Class account will need:

	API keys	**Watson Assistant -** 1 workspace per student One "Lite" API key is free but can only be used to create 5 workspaces One "Standard" API key can be used to create to create 20 workspaces more detail at: https://github.com/IBM/taxinomitis-docs/raw/master/docs/pdf/machinelearningforkids-apikeys.pdf

Customizing

If you use **PRIMM** approaches with your class, add a step where students predict how the project template works.
If you want to **increase the amount of coding** involved, delete some of the code from the project template and add steps to the worksheet so students code it themselves.
If you want to **encourage problem solving**, delete some of the detail in the worksheets and provide more general instructions instead.
Project template files & worksheets in MS Word format are available so you can **modify them to suit your class**.

Template	https://github.com/IBM/taxinomitis-docs/tree/master/scratch-templates
Worksheets	https://github.com/IBM/taxinomitis-docs/tree/master/project-worksheets/msword

Help

Potential issues	• Students will type about 25 short sentences. For some younger children, this might not be achievable in a single lesson, so you may wish to allow extra time. Or, do this as a "whole class project" (create the project yourself and tick "whole class project") so the class writes 25 sentences between them. • "https://machinelearningforkids.co.uk" is a long URL to type for some children. You may find it easier to set up a bookmark that they can click on instead. • The worksheet uses Scratch 3. You can use Scratch 2 instead if preferred. General troubleshooting and help at https://machinelearningforkids.co.uk/help