Before next lesson, upload this lab to the learning hub at learn.bcit.ca in the /Activities/Assignments/Lesson8Lab dropbox.

A sample solution will be posted at the start of the next lesson, so late submissions are not accepted.

Copy the following code into your IDE to create two tuples. Do not change any of this code.

1. **countries**: this is a tuple of strings. Each element of this tuple is a string: the name of a country.
2. **capitals**: this is a tuple of strings. Each element of this tuple is a string: the name of a capital city.

# START HERE AND PASTE INTO YOUR LAB IN YOUR IDE

**countries =** ('Afghanistan', 'Albania', 'Algeria', 'Andorra', 'Angola', 'Antigua and Barbuda', 'Argentina', 'Armenia', 'Australia', 'Austria', 'Azerbaijan', 'Bahamas', 'Bahrain', 'Bangladesh', 'Barbados', 'Belarus', 'Belgium', 'Belize', 'Benin', 'Bhutan', 'Bolivia', 'Bosnia and Herzegovina', 'Botswana', 'Brazil', 'Brunei', 'Bulgaria', 'Burkina Faso', 'Burundi', 'Cambodia', 'Cameroon', 'Canada', 'Cape Verde', 'Central African Republic', 'Chad', 'Chile', 'China', 'Colombia', 'Comoros', 'Congo, Democratic Republic of the', 'Congo, Republic of the', 'Costa Rica', "Cote d'Ivoire (Ivory Coast)", 'Croatia', 'Cuba', 'Cyprus', 'Czech Republic (Czechia)', 'Denmark', 'Djibouti', 'Dominica', 'Dominican Republic', 'East Timor', 'Ecuador', 'Egypt', 'El Salvador', 'England', 'Equatorial Guinea', 'Eritrea', 'Estonia', 'Eswatini (Swaziland)', 'Ethiopia', 'Federated States of Micronesia', 'Fiji', 'Finland', 'France', 'Gabon', 'Gambia', 'Georgia', 'Germany', 'Ghana', 'Greece', 'Grenada', 'Guatemala', 'Guinea', 'Guinea-Bissau', 'Guyana', 'Haiti', 'Honduras', 'Hungary', 'Iceland', 'India', 'Indonesia', 'Iran', 'Iraq', 'Ireland', 'Israel', 'Italy', 'Jamaica', 'Japan', 'Jordan', 'Kazakhstan', 'Kenya', 'Kiribati', 'Kosovo', 'Kuwait', 'Kyrgyzstan', 'Laos', 'Latvia', 'Lebanon', 'Lesotho', 'Liberia', 'Libya', 'Liechtenstein', 'Lithuania', 'Luxembourg', 'Madagascar', 'Malawi', 'Malaysia', 'Maldives', 'Mali', 'Malta', 'Marshall Islands', 'Mauritania', 'Mauritius', 'Mexico', 'Moldova', 'Monaco', 'Mongolia', 'Montenegro', 'Morocco', 'Mozambique', 'Myanmar (Burma)', 'Namibia', 'Nauru', 'Nepal', 'Netherlands', 'New Zealand', 'Nicaragua', 'Niger', 'Nigeria', 'North Korea', 'North Macedonia (Macedonia)', 'Northern Ireland', 'Norway', 'Oman', 'Pakistan', 'Palau', 'Panama', 'Papua New Guinea', 'Paraguay', 'Peru', 'Philippines', 'Poland', 'Portugal', 'Qatar', 'Romania', 'Russia', 'Rwanda', 'Saint Kitts and Nevis', 'Saint Lucia', 'Saint Vincent and the Grenadines', 'Samoa', 'San Marino', 'Sao Tome and Principe', 'Saudi Arabia', 'Scotland', 'Senegal', 'Serbia', 'Seychelles', 'Sierra Leone', 'Singapore', 'Slovakia', 'Slovenia', 'Solomon Islands', 'Somalia', 'South Africa', 'South Korea', 'South Sudan', 'Spain', 'Sri Lanka', 'Sudan', 'Suriname', 'Sweden', 'Switzerland', 'Syria', 'Taiwan', 'Tajikistan', 'Tanzania', 'Thailand', 'Togo', 'Tonga', 'Trinidad and Tobago', 'Tunisia', 'Turkey', 'Turkmenistan', 'Tuvalu', 'Uganda', 'Ukraine', 'United Arab Emirates', 'United Kingdom', 'United States', 'Uruguay', 'Uzbekistan', 'Vanuatu', 'Vatican City', 'Venezuela', 'Vietnam', 'Wales', 'Yemen', 'Zambia', 'Zimbabwe')

**capitals =** ('Kabul', 'Tirana (Tirane)', 'Algiers', 'Andorra la Vella', 'Luanda', "Saint John's", 'Buenos Aires', 'Yerevan', 'Canberra', 'Vienna', 'Baku', 'Nassau', 'Manama', 'Dhaka', 'Bridgetown', 'Minsk', 'Brussels', 'Belmopan', 'Porto Novo', 'Thimphu', 'Sucre', 'Sarajevo', 'Gaborone', 'Brasilia', 'Bandar Seri Begawan', 'Sofia', 'Ouagadougou', 'Gitega', 'Phnom Penh', 'Yaounde', 'Ottawa', 'Praia', 'Bangui', "N'Djamena", 'Santiago', 'Beijing', 'Bogota', 'Moroni', 'Kinshasa', 'Brazzaville', 'San Jose', 'Yamoussoukro', 'Zagreb', 'Havana', 'Nicosia', 'Prague', 'Copenhagen', 'Djibouti', 'Roseau', 'Santo Domingo', 'Dili', 'Quito', 'Cairo', 'San Salvador', 'London', 'Malabo', 'Asmara', 'Tallinn', 'Mbabana', 'Addis Ababa', 'Palikir', 'Suva', 'Helsinki', 'Paris', 'Libreville', 'Banjul', 'Tbilisi', 'Berlin', 'Accra', 'Athens', "Saint George's", 'Guatemala City', 'Conakry', 'Bissau', 'Georgetown', 'Port au Prince', 'Tegucigalpa', 'Budapest', 'Reykjavik', 'New Delhi', 'Jakarta', 'Tehran', 'Baghdad', 'Dublin', 'Jerusalem', 'Rome', 'Kingston', 'Tokyo', 'Amman', 'Nur-Sultan', 'Nairobi', 'Tarawa Atoll', 'Pristina', 'Kuwait City', 'Bishkek', 'Vientiane', 'Riga', 'Beirut', 'Maseru', 'Monrovia', 'Tripoli', 'Vaduz', 'Vilnius', 'Luxembourg', 'Antananarivo', 'Lilongwe', 'Kuala Lumpur', 'Male', 'Bamako', 'Valletta', 'Majuro', 'Nouakchott', 'Port Louis', 'Mexico City', 'Chisinau', 'Monaco', 'Ulaanbaatar', 'Podgorica', 'Rabat', 'Maputo', 'Nay Pyi Taw', 'Windhoek', 'No official capital', 'Kathmandu', 'Amsterdam', 'Wellington', 'Managua', 'Niamey', 'Abuja', 'Pyongyang', 'Skopje', 'Belfast', 'Oslo', 'Muscat', 'Islamabad', 'Melekeok', 'Panama City', 'Port Moresby', 'Asuncion', 'Lima', 'Manila', 'Warsaw', 'Lisbon', 'Doha', 'Bucharest', 'Moscow', 'Kigali', 'Basseterre', 'Castries', 'Kingstown', 'Apia', 'San Marino', 'Sao Tome', 'Riyadh', 'Edinburgh', 'Dakar', 'Belgrade', 'Victoria', 'Freetown', 'Singapore', 'Bratislava', 'Ljubljana', 'Honiara', 'Mogadishu', 'Pretoria, Bloemfontein, Cape Town', 'Seoul', 'Juba', 'Madrid', 'Colombo', 'Khartoum', 'Paramaribo', 'Stockholm', 'Bern', 'Damascus', 'Taipei', 'Dushanbe', 'Dodoma', 'Bangkok', 'Lome', "Nuku'alofa", 'Port of Spain', 'Tunis', 'Ankara', 'Ashgabat', 'Funafuti', 'Kampala', 'Kiev', 'Abu Dhabi', 'London', 'Washington D.C.', 'Montevideo', 'Tashkent', 'Port Vila', 'Vatican City', 'Caracas', 'Hanoi', 'Cardiff', "Sana'a", 'Lusaka', 'Harare')

# END HERE

# Lab Instructions

Write a function called “get\_countries(substring)” that loops through the countries tuple. If a country contains the substring parameter, create a brand-new file named “lab-week-8.txt” for writing, and write that country name on its own line in the file. Then close the file.

In a function called “get\_capitals(substring)”, re-open the “lab-week-8.txt” file for appending, loop through the capitals tuple. If a capital contains the substring parameter, append that capital to the end of the file, on its own line. Then close the file.

In a function called “get\_file\_data()”, re-open the “lab-week-8.txt” file for reading. Use the readlines() function to loop through the file and display each of the lines to the screen.

From main, call the get\_countries(), get\_capitals(), and print\_file\_data() functions in that order. For example, call them as follows:

get\_countries(“an”)

get\_capitals(“os”)

print\_file\_data()