## Chapter 6 - Data Sourcing via Web

## Part 2 - NavigatableString Objects

```
import sys
print(sys.version)
import sys
print(sys.version)

3.7.13 (default, Apr 24 2022, 01:04:09)
  [GCC 7.5.0]
  3.7.13 (default, Apr 24 2022, 01:04:09)
  [GCC 7.5.0]

from bs4 import BeautifulSoup
from bs4 import BeautifulSoup
```

## NavigatableString objects

```
soup_object = BeautifulSoup('<h1 attribute_1 = "Heading Level 1"">Future Trends in IoT in 2018</h1>', "lxml")

tag = soup_object.h1

type(tag)
'''soup-object = BeautifulSoup('','lxml')
tag=soup_object.h1
type(tag)'''
    'soup-object = BeautifulSoup('','lxml')\ntag=soup_object.h1\ntype(tag)'

tag.name
#tag.name
#tag.name
```

```
tag.string
soup_object.h1.string
     'Future Trends in IoT in 2018'
type(tag.string)
#type(tag.string)
     bs4.element.NavigableString
our_navigatable_string = tag.string
our navigatable string
     'Future Trends in IoT in 2018'
our_navigatable_string.replace_with('NaN')
tag.string
#tag.string.replace_with('NaN')
     'NaN'
```

## Utilizing NavigatableString objects

```
To understand how it works, imagine you're pulling your normal 9-to-5 and you know you need to grab some groceries on your way home. W
To watch some of the amazing IoT device demos I witnessed at Ericsson Studio, make sure to go <span style="text-decoration: underline;
<h1>Future Trends for IoT in 2018</h1>
New IoT device ideas won't do you much good unless you at least know the basic technology trends that are set to impact IoT over the n
<strong>Big Data</strong> &amp; Data Engineering: Sensors that are embedded within IoT devices spin off machine-generated data
   <strong>Machine Learning</strong> Data Science: While a lot of IoT devices are still operated according to rules-based decisio
   <strong>Blockchain</strong>-Enabled Security: Above all else, IoT networks must be secure. Blockchain technology is primed to
<h1>Best New IoT Device Ideas</h1>
This listing of new IoT device ideas has been sub-divided according to the main technology upon which the IoT devices are built. Below
<h2>Raspberry Pi IoT Ideas</h2>
Using Raspberry Pi as open-source hardware, you can build IoT applications that offer any one of the following benefits:
<Ii>>Enable built-in sensing to build a weather station that measures ambient temperature and humidity
    >Build a system that detects discrepancies in electrical readings to identify electricity theft
    Vise IoT to build a Servo that is controlled by motion detection readings
   Build a smart control switch that operates devices based on external stimuli. Use this for home automation.
   Build a music playing application that enables music for each room in your house
   Implement biometrics on IoT-connected devices
<h2>Arduino IoT Ideas</h2>
There are a number of new IoT device ideas that deploy Arduino as a microcontroller. These include:
Integrate Arduino with Android to build a remote-control RGB LED device.
   Connect PIR sensors across the IoT to implement a smart building.
   >Build a temperature and sunlight sensor system to remotely monitor and control the conditions of your garden.
    >Deploy Arduino and IoT to automate your neighborhood streetlights.
   >Build a smart irrigation system based on IoT-connected temperature and moisture sensors built-in to your agricultural plants.
[caption id="attachment 3807" align="aligncenter" width="300"]<a href="bit.ly/LPlNDJj"><img class="wp-image-3807 size-medium" src="htt
<h2>Wireless (GSM) IoT Ideas</h2>
Several new IoT device ideas are developed around the GSM wireless network. Those are:
Monitor soil moisture to automate agricultural irrigation cycles.
    Automate and control the conditions of a greenhouse.
```

Build an autonomously operating fitness application that automatically makes recommendations based on motion detection and hea
Build a healthcare monitoring system that tracks, informs, and automatically alerts healthcare providers based on sensor readi

Enable bio-metrics to build a smart security system for your home or office building

```
<h2>IoT Automation Ideas</h2>
Almost all new IoT device ideas offer automation benefits, but to outline a few more ideas:
>Build an IoT device that automatically locates and reports the closest nearby parking spot.
   Suild a motion detection system that automatically issues emails or sms messages to alert home owners of a likely home invasio
   Use temperature sensors connected across the IoT to automatically alert you if your home windows or doors have been left open.
   Use bio-metric sensors to build a smart system that automate security for your home or office building
To learn more about IoT and what's happening on the leading edge, be sure to pop over to Ericsson's Studio Tour recap and <span style=
<em>(I captured some of this content on behalf of DevMode Strategies during an invite-only tour of the Ericsson Studio in Kista. Rest
...
our_soup_object = BeautifulSoup(our_html_document, 'html.parser')
#our-soup object=BeautifulSoup(our, 'html.parser')
for string in our_soup_object.stripped_strings:
   print(repr(string))
'''for string in our_soup.stripped_strings:
   print(repr(string))'''
     'IoT Articles'
     '2018 Trends: Best New IoT Device Ideas for Data Scientists and Engineers'
     'It's almost 2018 and IoT is on the cusp of an explosive expansion. In this article, I offer you a listing of new IoT device i
     'It's almost 2018 and IoT is on the cusp of an explosive expansion. In this article, I offer you a listing of new IoT device i
     'Looking Back at My Coolest IoT Find in 2017'
     'Before going into detail about best new IoT device ideas, here's the backstory.'
     'Last month Ericsson Digital invited me'
     'to tour the Ericsson Studio in Kista, Sweden. Up until that visit,'
     'IoT'
     'had been largely theoretical to me. Of course, I know the usual mumbo-jumbo about wearables and IoT-connected fitness tracker
     'This car is connected to Ericsson's Connected Vehicle Cloud, an IoT platform that manages services for the Smart Cars to whic
     'Mat.se'
     '), so all you need to do is open the Mat.se app and make your usual order. Mat.se automatically handles the payment, grocery
     'watch the videos on this page'
     '.'
     'Future Trends for IoT in 2018'
     'New IoT device ideas won't do you much good unless you at least know the basic technology trends that are set to impact IoT o
     'Big Data'
     '& Data Engineering: Sensors that are embedded within IoT devices spin off machine-generated data like it's going out of style
     'Machine Learning'
     'Data Science: While a lot of IoT devices are still operated according to rules-based decision criteria, the age of artificial
     'Blockchain'
     '-Enabled Security: Above all else, IoT networks must be secure. Blockchain technology is primed to meet the security demands
```

```
'Best New IoT Device Ideas'
     'This listing of new IoT device ideas has been sub-divided according to the main technology upon which the IoT devices are bui
     'IoT courses on Udemv'
     '(ß Please note: if you purchase a Udemy course through this link, I may receive a small commission), or courses that are avai
     'SkyFi'
     'and'
     'Coursera'
     1 1
     'Raspberry Pi IoT Ideas'
     'Using Raspberry Pi as open-source hardware, you can build IoT applications that offer any one of the following benefits:'
     'Enable built-in sensing to build a weather station that measures ambient temperature and humidity'
     'Build a system that detects discrepancies in electrical readings to identify electricity theft'
     'Use IoT to build a Servo that is controlled by motion detection readings'
     'Build a smart control switch that operates devices based on external stimuli. Use this for home automation.'
     'Build a music playing application that enables music for each room in your house'
     'Implement biometrics on IoT-connected devices'
     'Arduino IoT Ideas'
     'There are a number of new IoT device ideas that deploy Arduino as a microcontroller. These include:'
     'Integrate Arduino with Android to build a remote-control RGB LED device.'
     'Connect PIR sensors across the IoT to implement a smart building.'
     'Build a temperature and sunlight sensor system to remotely monitor and control the conditions of your garden.'
     'Deploy Arduino and IoT to automate your neighborhood streetlights.'
     'Build a smart irrigation system based on IoT-connected temperature and moisture sensors built-in to your agricultural plants.
     '[caption id="attachment_3807" align="aligncenter" width="300"]'
     'An IoT Chatbot Tree at the Ericsson Studio[/caption]'
     'Wireless (GSM) IoT Ideas'
     'Several new IoT device ideas are developed around the GSM wireless network. Those are:'
     'Monitor soil moisture to automate agricultural irrigation cycles.'
     'Automate and control the conditions of a greenhouse.'
     'Enable bio-metrics to build a smart security system for your home or office building'
     'Build an autonomously operating fitness application that automatically makes recommendations based on motion detection and he
     'Build a healthcare monitoring system that tracks, informs, and automatically alerts healthcare providers based on sensor read
     'IoT Automation Ideas'
first_link= our_soup_object.a
print(first link)
#our soup.a
     <a href="http://bit.ly/LPlNDJj">Last month Ericsson Digital invited me</a>
first_link.parent
#soup.a.parent
```

<strong><a href="http://bit.ly/LPINDJj">Last month Ericsson Digital invited me</a></strong>

```
first_link.string
#soup.a.string

'Last month Ericsson Digital invited me'

first_link.string.parent

<a href="http://bit.ly/LP1NDJj">Last month Ericsson Digital invited me</a></a>
```