SCM211-6355/2015

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Bsc. Mathematics and Computer Science

Yr4 Sem1

Simulation and Modelling

**CAT ONE AND CAT TWO:**

Both programs were encompassed inside a flask application where:

1. For the bouncing ball- there is a document in the respository /mainModules/plotted.py that runs individually and code in progress in /mainModules/maplot.py

The script can be run directly on the terminal

*python3 plotted.py*

2. For the queue – your estimations for minimum and maximum, arrival and service times are factored in from the form on the main page and averaged times are returned on the results page.

On Linux:

git clone https://github.com/njoro254/queue\_bouncingball.git

*python3 -m venv simenv && source simenv/bin/activate*

*pip install -r requirements.txt && python3 manage.py runserver*

Launch *http:*//*127.0.0.1:5000* on your browser and test.

**CAT ONE (ONSITE)**

**#matplotlib methods**

# importing movie py libraries

from moviepy.editor import VideoClip

from moviepy.video.io.bindings import mplfig\_to\_npimage

import matplotlib.pyplot as plt

import matplotlib.animation as animation

import numpy as np

# def clever\_function():

# Acceleration due to gravity, m.s-2.

g = 9.81

# The maximum x-range of ball's trajectory to plot.

XMAX = 5

# The coefficient of restitution for bounces (-v\_up/v\_down).

cor = 0.65

# The time step for the animation.

dt = 0.005

# Initial position and velocity vectors.

x0, y0 = 0, 4

vx0, vy0 = 1, 0

def get\_pos(t=0):

"""A generator yielding the ball's position at time t."""

x, y, vx, vy = x0, y0, vx0, vy0

while x < XMAX:

t += dt

x += vx0 \* dt

y += vy \* dt

vy -= g \* dt

if y < 0:

# bounce!

y = 0

vy = -vy \* cor

yield x, y

def init():

"""Initialize the animation figure."""

ax.set\_xlim(0, XMAX)

ax.set\_ylim(0, y0)

ax.set\_xlabel('$x$ /m')

ax.set\_ylabel('$y$ /m')

line.set\_data(xdata, ydata)

ball.set\_center((x0, y0))

height\_text.set\_text(f'Height: {y0:.1f} m')

return line, ball, height\_text

def animate(pos):

"""For each frame, advance the animation to the new position, pos."""

x, y = pos

xdata.append(x)

ydata.append(y)

line.set\_data(xdata, ydata)

ball.set\_center((x, y))

height\_text.set\_text(f'Height: {y:.1f} m')

return line, ball, height\_text

# Set up a new Figure, with equal aspect ratio so the ball appears round.

fig, ax = plt.subplots()

ax.set\_aspect('equal')

# These are the objects we need to keep track of.

line, = ax.plot([], [], lw=2)

ball = plt.Circle((x0, y0), 0.08)

height\_text = ax.text(XMAX\*0.5, y0\*0.8, f'Height: {y0:.1f} m')

ax.add\_patch(ball)

xdata, ydata = [], []

interval = 1000\*dt

ani = animation.FuncAnimation(fig, animate, get\_pos, blit=True,

interval=interval, repeat=False, init\_func=init)

plt.show()

**#plot currently viewable in a notebook**

**#flask main file**

import os, sys

from flask\_script import Manager, Server

from application import create\_app

sys.path.append(os.path.abspath(os.path.join(os.path.dirname(\_\_file\_\_), '..')))

app = create\_app()

manager = Manager(app)

manager.add\_command("runserver", Server(

use\_debugger=True,

use\_reloader=True,

host=os.getenv('IP','0.0.0.0'),

port=int(os.getenv('PORT', 5000)))

)

if \_\_name\_\_=="\_\_main\_\_":

manager.run()

**#application launch**

from flask import Flask

from subprocess import call

from mainModules.matplot import clever\_function

def create\_app(\*\*config\_overrides):

app = Flask(\_\_name\_\_)

# Apply Overrides for tests

app.config.update(config\_overrides)

app.jinja\_env.globals.update(clever\_function=clever\_function)

# import blueprints

from prints.views import guest\_app

# register blueprints

app.register\_blueprint(guest\_app)

return app

**#views to HTML FORM**

# importing movie py libraries

from moviepy.editor import VideoClip

from moviepy.video.io.bindings import mplfig\_to\_npimage

import matplotlib.pyplot as plt

import matplotlib.animation as animation

import numpy as np

def clever\_function():

# Acceleration due to gravity, m.s-2.

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dt = 0.005

# Initial position and velocity vectors.

x0, y0 = 0, 4

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def get\_pos(t=0):

"""A generator yielding the ball's position at time t."""

x, y, vx, vy = x0, y0, vx0, vy0

while x < XMAX:

t += dt

x += vx0 \* dt

y += vy \* dt

vy -= g \* dt

if y < 0:

# bounce!

y = 0

vy = -vy \* cor

yield x, y

def init():

ax.set\_xlim(0, XMAX)

ax.set\_ylim(0, y0)

ax.set\_xlabel('$x$ /m')

ax.set\_ylabel('$y$ /m')

line.set\_data(xdata, ydata)

ball.set\_center((x0, y0))

height\_text.set\_text(f'Height: {y0:.1f} m')

return line, ball, height\_text

def animate(pos):

x, y = pos

xdata.append(x)

ydata.append(y)

line.set\_data(xdata, ydata)

ball.set\_center((x, y))

height\_text.set\_text(f'Height: {y:.1f} m')

return line, ball, height\_text

fig, ax = plt.subplots()

ax.set\_aspect('equal')

line, = ax.plot([], [], lw=2)

ball = plt.Circle((x0, y0), 0.08)

height\_text = ax.text(XMAX\*0.5, y0\*0.8, f'Height: {y0:.1f} m')

ax.add\_patch(ball)

xdata, ydata = [], []

interval = 1000\*dt

# ani = animation.FuncAnimation(fig, animate, get\_pos, blit=True,

# interval=interval, repeat=False, init\_func=init)

# plt.show()

# numpy array

x = np.linspace(-2, 2, 200)

# duration of the video

duration = 2

# matplot subplot

# fig, ax = plt.subplots()

# method to get frames

def make\_frame(t):

# clear

ax.clear()

# plotting line

ax.plot(x, np.sinc(x\*\*2) + np.sin(x + 2 \* np.pi / duration \* t), lw = 3)

ax.set\_ylim(-1.5, 2.5)

# returning numpy image

return mplfig\_to\_npimage(fig)

# creating animation

animation = VideoClip(make\_frame, duration = duration)

# displaying animation with auto play and looping

views = animation.ipython\_display(fps = 20, loop = True, autoplay = True)

#to be rendered via ipython lib

# from IPython.core.display import display, HTML

views = display(HTML(views))

**CAT TWO (FLASK)**

**#simulation method**

from random import randint as r

import pandas as pd

def simulate\_queue(arr1,arr2,ser1,ser2):

#declare all variables

arrival\_time, idle\_time, start\_service, service\_time, depart\_time=0,0,0,0,0

list1=[]

# for each customer

for i in range(1009):

dictrow = {}

# arrived at default time

dictrow ['arrival\_time'] = arrival\_time

#service started when the last patient left

try:

start\_service = list1[-1]['depart\_time']

# dictrow ['start\_service'] = start\_service

except:

start\_service = 0

# dictrow ['start\_service'] = start\_service

# they left after a random service time service may take upto 15 minutes

# service\_times = r(ser1,ser2)

# combined linear congruential function

# service\_times = (r(0,1000)\*ser1 + ser2)%ser2

service\_times =((r(10000,10000000)%r(ser1,ser2)) -(r(10000,10000000)%r(ser1,ser2)))%ser2

depart\_time = start\_service + service\_times

# dictrow['depart\_time'] = depart\_time

# the difference between the time waited before the last consumer left

try:

idle\_time = list1[-1]['depart\_time'] - arrival\_time

# dictrow ['idle\_time'] = idle\_time

except:

idle\_time = 0

dictrow ['idle\_time'] = 0

#columns in order

dictrow ['idle\_time'] = idle\_time

dictrow ['start\_service'] = start\_service

dictrow ['service\_time'] = depart\_time - start\_service

dictrow['depart\_time'] = depart\_time

list1.append(dictrow)

# calls come every 10 minutes

# arrival\_time += r(arr1,arr2)

# linear congruential function

arrival\_time = (r(0,1000)\*arr1 + arr2)%arr2

#get averages for idle and service

average\_idle\_time, average\_service\_time = 0,0

for items in list1:

average\_idle\_time += items['idle\_time']

average\_service\_time += items['service\_time']

average\_idle\_time = average\_idle\_time/1000

average\_service\_time = average\_service\_time/1000

# save data type unformatted in json

with open ('waitlist.json', 'w+') as f:

f.write(str(list1))

df = pd.DataFrame.from\_dict(list1)

df.to\_csv (r'waitlist.csv', index = False, header=True)

with open ('waitlist.csv', 'a') as f:

f.write(str({'average\_idle\_time':average\_idle\_time, 'average\_service\_time':average\_service\_time}))

return average\_idle\_time, average\_service\_time

# f.write('arrival\_time, idle\_time, start\_service, service\_time, depart\_time')

# with open ('waitlist.csv', 'a') as f:

# for items in list1:

# rows = str(items['arrival\_time'])+","+str(items['idle\_time'])+","+str(items['start\_service'])+","+str(items['service\_time'])+","+str(items['depart\_time'])

# f.write(rows)

**#flask views**

from flask.views import MethodView

from flask import request, abort, jsonify, render\_template, session,send\_from\_directory

from mainModules.arrive import simulate\_queue

# import pdfkit, os

class HomeAPI(MethodView):

def get(self):

return render\_template("index.html")

def post(self):

arr1, arr2, ser1, ser2 = int(request.form["arr1"]),int(request.form["arr2"]),int(request.form["ser1"]),int(request.form["ser2"])

average\_idle\_time, average\_service\_time = simulate\_queue(arr1,arr2,ser1,ser2)[0],simulate\_queue(arr1,arr2,ser1,ser2)[0]

return render\_template("results.html", average\_idle\_time=average\_idle\_time, average\_service\_time=average\_service\_time)

class ResultsAPI(MethodView):

def get(self):

return render\_template("results.html")

class BouncingAPI(MethodView):

def get(self):

return render\_template("bouncing.html")

class DownloadAPI(MethodView):

def get(self,extension):

# return "success"

names = "waitlist."+extension

return send\_from\_directory(directory="mainModules",path=names)

from flask import Blueprint

from .api import \*

guest\_app = Blueprint("guest\_app", \_\_name\_\_)

homeapi\_view = HomeAPI.as\_view('home\_api')

guest\_app.add\_url\_rule('/',

view\_func=homeapi\_view,

methods=['GET', 'POST'])

resultsapi\_view = ResultsAPI.as\_view('ResultsAPI\_api')

guest\_app.add\_url\_rule('/results',

view\_func=resultsapi\_view,

methods=['GET'])

bouncingapi\_view = BouncingAPI.as\_view('BouncingAPI\_api')

guest\_app.add\_url\_rule('/bouncing',

view\_func=bouncingapi\_view,

methods=['GET'])

downloadapi\_view = DownloadAPI.as\_view('DownloadAPI\_api')

guest\_app.add\_url\_rule('/download/<extension>',

view\_func=downloadapi\_view,

methods=['GET'])

**#flask views**

<!DOCTYPE HTML>

<html>

<head>

<meta charset="utf-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<link rel="icon" href="images/favicon.ico">

<title>Simulation &mdash; and Modelling</title>

<link href="https://fonts.googleapis.com/css?family=Lato:300,400,700" rel="stylesheet">

<link href="https://fonts.googleapis.com/css?family=Kaushan+Script" rel="stylesheet">

<link rel="stylesheet" href="static/css/animate.css">

<link rel="stylesheet" href="static/css/icomoon.css">

<link rel="stylesheet" href="static/css/themify-icons.css">

<link rel="stylesheet" href="static/css/bootstrap.css">

<link rel="stylesheet" href="static/css/magnific-popup.css">

<link rel="stylesheet" href="static/css/bootstrap-datetimepicker.min.css">

<link rel="stylesheet" href="static/css/owl.carousel.min.css">

<link rel="stylesheet" href="static/css/owl.theme.default.min.css">

<link rel="stylesheet" href="static/css/style.css">

<script src="static/js/modernizr-2.6.2.min.js"></script>

<style type="text/css">

body {font-family: Arial, Helvetica, sans-serif;}

/\* Full-width input fields \*/

input[type=text], input[type=password] {

padding: 12px 20px;

margin: 8px 0;

display: inline-block;

border: 1px solid #ccc;

box-sizing: border-box;

width: 500px;

}

/\* Set a style for all buttons \*/

button {

background-color: #4CAF50;

color: white;

margin: 8px 0;

border: none;

cursor: pointer;

width: 250px;

}

button:hover {

opacity: 0.8;

width: 250px;

}

/\* Extra styles for the cancel button \*/

.cancelbtn {

width: auto;

padding: 10px 18px;

background-color: #f44336;

}

/\* Center the image and position the close button \*/

.imgcontainer {

text-align: center;

margin: 24px 0 12px 0;

position: relative;

}

img.avatar {

width: 160px;

border-radius: 50%;

}

.container {

padding: 16px;

width: 800px;

}

span.psw {

float: left;

}

/\* The Modal (background) \*/

.modal {

display: none; /\* Hidden by default \*/

position: fixed; /\* Stay in place \*/

z-index: 100000; /\* Sit on top \*/

left: 0;

top: 0;

width: 100%; /\* Full width \*/

height: 100%; /\* Full height \*/

overflow: auto; /\* Enable scroll if needed \*/

background-color: rgb(0,0,0); /\* Fallback color \*/

background-color: rgba(0,0,0,0.4); /\* Black w/ opacity \*/

padding-top: 60px;

}

/\* Modal Content/Box \*/

.modal-content {

background-color: #fefefe;

margin: 5% auto 15% auto; /\* 5% from the top, 15% from the bottom and centered \*/

border: 1px solid #888;

width: 80%; /\* Could be more or less, depending on screen size \*/

}

/\* The Close Button (x) \*/

.close {

position: absolute;

right: 25px;

top: 0;

color: #000;

font-size: 35px;

font-weight: bold;

}

.close:hover,

.close:focus {

color: red;

cursor: pointer;

}

/\* Add Zoom Animation \*/

.animate {

-webkit-animation: animatezoom 0.6s;

animation: animatezoom 0.6s

}

@-webkit-keyframes animatezoom {

from {-webkit-transform: scale(0)}

to {-webkit-transform: scale(1)}

}

@keyframes animatezoom {

from {transform: scale(0)}

to {transform: scale(1)}

}

/\* Change styles for span and cancel button on extra small screens \*/

@media screen and (max-width: 300px) {

span.psw {

display: block;

float: none;

}

.cancelbtn {

width: 100%;

}

}

</style>

</head>

<body>

<div class="gtco-loader"></div>

<div id="page">

<nav class="gtco-nav" role="navigation">

<div class="gtco-container">

<div class="row">

<div class="col-sm-4 col-xs-12">

<div id="gtco-logo"><a href="/">Cat 2 <em>.</em></a></div>

</div>

<div class="col-xs-8 text-right menu-1">

<ul>

<li><a href="/bouncing">Bouncing Ball</a></li>

<!-- <li class="has-dropdown">

<a href="index.html">Reservation</a> --> </li>

<!-- <li><a href="contact.html">Contact</a></li> -->

<!-- <li class="btn-cta"><a href="#"><button class="signin" onclick="document.getElementById('id01').style.display='block'" style=" width:auto;">Login</button></a></li> -->

</ul>

</div>

</div>

</div>

</nav>

<header id="gtco-header" class="gtco-cover gtco-cover-md" role="banner" style="background-image: url(images/img\_bg\_1.jpg)" data-stellar-background-ratio="0.5">

<div class="overlay"></div>

<div class="gtco-container">

<div class="row">

<div class="col-md-12 col-md-offset-0 text-left">

<div class="row row-mt-15em">

<div class="col-md-7 mt-text animate-box" data-animate-effect="fadeInUp">

<h1 class="cursive-font">Test queue outcomes all in a jiffy!</h1>

</div>

<div class="col-md-4 col-md-push-1 animate-box" data-animate-effect="fadeInRight">

<div class="form-wrap">

<div class="tab">

<div class="tab-content">

<h3 class="cursive-font">Test queue time frames</h3>

<div class="tab-content-inner active" data-content="signup">

<form action="/" method="post">

<div class="row form-group">

<div class="col-md-12">

<label for="arr1">Minimum arrival interval</label>

<input type="arr1" id="arr1" name="arr1" >

</div>

</div>

<div class="row form-group">

<div class="col-md-12">

<label for="arr2">Maximum arrival interval</label>

<input type="arr2" id="arr2" name="arr2" >

</div>

</div>

<div class="row form-group">

<div class="col-md-12">

<label for="ser1">Minimum service time</label>

<input type="ser1" id="ser1" name="ser1" >

</div>

</div>

<div class="row form-group">

<div class="col-md-12">

<label for="ser2">Maximum service time</label>

<input type="ser2" id="ser2" name="ser2" >

</div>

</div>

<div class="row form-group">

<div class="col-md-12">

<input type="submit" class="btn btn-primary btn-block" value="Test Now" onclick="myfunction()">

</div>

</div>

</form>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

<p>The simulation system represents Safaricom receiving 1000 customer care calls, your input values representing the maximum and minimum, arrival and service times</p>

</div>

</div>

</header>

<!-- <div id="gtco-features">

<div class="gtco-container">

<div class="row">

<div class="col-md-8 col-md-offset-2 text-center gtco-heading animate-box">

<h2 class="cursive-font">Our Partners</h2>

</div>

</div>

<div class="row">

<div class="col-md-4 col-sm-6">

<div class="feature-center animate-box" data-animate-effect="fadeIn" "><img style="border-radius: 25px; src="images/download.png">

<h3 class="vendors">La Pino's Pizza</h3>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="feature-center animate-box" data-animate-effect="fadeIn">

<img style="border-radius: 25px;" src="images/45c228661e49ec525172d7102a086ac2\_featured\_v2.png">

<h3 class="vendors">Havmor</h3>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="feature-center animate-box" data-animate-effect="fadeIn">

<img style="border-radius : 25px;" src="images/mp\_607506\_2017-01-19-11-39-53-000813.png">

<h3 class="vendors">BurGrill</h3>

</div>

</div>

</div>

</div>

</div>

</div>

</div> -->

<footer id="gtco-footer" role="contentinfo" style="background-image: url(images/img\_bg\_1.jpg)" data-stellar-background-ratio="0.5">

<div class="overlay"></div>

<div class="gtco-container">

<div class="row row-pb-md">

<div class="col-md-12 text-center">

<div class="gtco-widget">

<h3>Get In Touch</h3>

<ul class="gtco-quick-contact">

<li><a href="#"><i class="icon-phone"></i> +254 700 846 598</a></li>

<li><a href="#"><i class="icon-mail2"></i> mark.muchemi@students.jkuat.ac.ke</a></li>

<li><a href="#"><i class="icon-chat"></i> SCM 211-6355/2015</a></li>

</ul>

</div>

<!-- <div class="gtco-widget">

<h3>Get Social</h3>

<ul class="gtco-social-icons">

<li><a href="#"><i class="icon-twitter"></i></a></li>

<li><a href="#"><i class="icon-facebook"></i></a></li>

<li><a href="#"><i class="icon-linkedin"></i></a></li>

<li><a href="#"><i class="icon-dribbble"></i></a></li>

</ul>

</div>

</div> -->

<div class="col-md-12 text-center copyright">

<p><small class="block">&copy; 2017 Mark Njoroge. All Rights Reserved.</small>

<small class="block">Designed by Mark Njoroge</small></p>

</div>

</div>

</div>

</footer>

<!-- </div> -->

</div>

<!-- jQuery -->

<script src="static/js/jquery.min.js"></script>

<!-- jQuery Easing -->

<script src="static/js/jquery.easing.1.3.js"></script>

<!-- Bootstrap -->

<script src="static/js/bootstrap.min.js"></script>

<!-- Waypoints -->

<script src="static/js/jquery.waypoints.min.js"></script>

<!-- Carousel -->

<script src="static/js/owl.carousel.min.js"></script>

<!-- countTo -->

<script src="static/js/jquery.countTo.js"></script>

<!-- Stellar Parallax -->

<script src="static/js/jquery.stellar.min.js"></script>

<!-- Magnific Popup -->

<script src="static/js/jquery.magnific-popup.min.js"></script>

<script src="static/js/magnific-popup-options.js"></script>

<script src="static/js/moment.min.js"></script>

<script src="static/js/bootstrap-datetimepicker.min.js"></script>

<!-- Main -->

<script src="static/js/main.js"></script>

<div id="id01" class="modal">

<form class="modal-content animate" action="/action\_page.php">

<div class="imgcontainer">

<span onclick="document.getElementById('id01').style.display='none'" class="close" title="Close Modal">&times;</span>

<img src="images/images.jfif" alt="Avatar" class="avatar">

</div>

<div class="container" style="margin-left: 230px;">

<label for="uname" style="margin-right: 4px"><strong>Username</strong></label>

<input style="border-radius: 8px ;" type="text" placeholder="Enter Username" name="uname" required >

<p> </p>

<label for="psw" style="margin-right: 4px"><b>Password</b></label>

<input style="border-radius: 8px ;" type="password" placeholder="Enter Password" name="psw" required>

<p> </p>

<label id="check"><input type="checkbox" checked="choice" name="remember"/>Remember me</label>

<p> </p>

<a id="popup-login" href="indexin.html"><img src="images\login1.jpg"/></a>

<!--<a href="indexin.html"><input href="indexin.html" id="popup-login" placeholder="Login" style="color: white" /></a>-->

</div>

<!--<div class="container" >

<button style="border-radius: 5px " type="button" onclick="document.getElementById('id01').style.display='none'" class="cancelbtn">Cancel</button>

</div>-->

</form>

</div>

<script>

// Get the modal

var modal = document.getElementById('id01');

// When the user clicks anywhere outside of the modal, close it

window.onclick = function(event) {

if (event.target == modal) {

modal.style.display = "none";

}

}

</script>

<script>

function myfunction()

{

alert("Submitting values to simulation model");

}

</script>

</body>

</html>

<!DOCTYPE HTML>

<html>

<head>

<meta charset="utf-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<link rel="icon" href="images/favicon.ico">

<title>QUEUE SIMULATION RESULTS</title>

<meta name="viewport" content="width=device-width, initial-scale=1">

<link href="https://fonts.googleapis.com/css?family=Lato:300,400,700" rel="stylesheet">

<link href="https://fonts.googleapis.com/css?family=Kaushan+Script" rel="stylesheet">

<!-- Animate.css -->

<link rel="stylesheet" href="static/css/animate.css">

<!-- Icomoon Icon Fonts-->

<link rel="stylesheet" href="static/css/icomoon.css">

<!-- Themify Icons-->

<link rel="stylesheet" href="static/css/themify-icons.css">

<!-- Bootstrap -->

<link rel="stylesheet" href="static/css/bootstrap.css">

<!-- Magnific Popup -->

<link rel="stylesheet" href="static/css/magnific-popup.css">

<!-- Bootstrap DateTimePicker -->

<link rel="stylesheet" href="static/css/bootstrap-datetimepicker.min.css">

<!-- Owl Carousel -->

<link rel="stylesheet" href="static/css/owl.carousel.min.css">

<link rel="stylesheet" href="static/css/owl.theme.default.min.css">

<!-- Theme style -->

<link rel="stylesheet" href="static/css/style3.css">

<!-- Modernizr JS -->

<script src="static/js/modernizr-2.6.2.min.js"></script>

<!-- FOR IE9 below -->

<!--[if lt IE 9]>

<script src="static/js/respond.min.js"></script>

<![endif]-->

<style type="text/css">

body {font-family: Arial, Helvetica, sans-serif;}

/\* Full-width input fields \*/

input[type=text], input[type=password] {

padding: 12px 20px;

margin: 8px 0;

display: inline-block;

border: 1px solid #ccc;

box-sizing: border-box;

width: 500px;

}

/\* Set a style for all buttons \*/

button {

background-color: #4CAF50;

color: white;

margin: 8px 0;

border: none;

cursor: pointer;

width: 250px;

}

button:hover {

opacity: 0.8;

width: 250px;

}

/\* Extra styles for the cancel button \*/

.cancelbtn {

width: auto;

padding: 10px 18px;

background-color: #f44336;

}

/\* Center the image and position the close button \*/

.imgcontainer {

text-align: center;

margin: 24px 0 12px 0;

position: relative;

}

img.avatar {

width: 160px;

border-radius: 50%;

}

.container {

padding: 16px;

width: 800px;

}

span.psw {

float: left;

}

/\* The Modal (background) \*/

.modal {

display: none; /\* Hidden by default \*/

position: fixed; /\* Stay in place \*/

z-index: 100000; /\* Sit on top \*/

left: 0;

top: 0;

width: 100%; /\* Full width \*/

height: 100%; /\* Full height \*/

overflow: auto; /\* Enable scroll if needed \*/

background-color: rgb(0,0,0); /\* Fallback color \*/

background-color: rgba(0,0,0,0.4); /\* Black w/ opacity \*/

padding-top: 60px;

}

/\* Modal Content/Box \*/

.modal-content {

background-color: #fefefe;

margin: 5% auto 15% auto; /\* 5% from the top, 15% from the bottom and centered \*/

border: 1px solid #888;

width: 80%; /\* Could be more or less, depending on screen size \*/

}

/\* The Close Button (x) \*/

.close {

position: absolute;

right: 25px;

top: 0;

color: #000;

font-size: 35px;

font-weight: bold;

}

.close:hover,

.close:focus {

color: red;

cursor: pointer;

}

/\* Add Zoom Animation \*/

.animate {

-webkit-animation: animatezoom 0.6s;

animation: animatezoom 0.6s

}

@-webkit-keyframes animatezoom {

from {-webkit-transform: scale(0)}

to {-webkit-transform: scale(1)}

}

@keyframes animatezoom {

from {transform: scale(0)}

to {transform: scale(1)}

}

/\* Change styles for span and cancel button on extra small screens \*/

@media screen and (max-width: 300px) {

span.psw {

display: block;

float: none;

}

.cancelbtn {

width: 100%;

}

}

</style>

</head>

<body>

<div class="gtco-loader"></div>

<div id="page">

<!-- <div class="page-inner"> -->

<nav class="gtco-nav" role="navigation">

<div class="gtco-container">

<div class="row">

<div class="col-sm-4 col-xs-12">

<div id="gtco-logo"><a href="/">Cat 2 <em>.</em></a></div>

</div>

<div class="col-xs-8 text-right menu-1">

<ul>

<li><a href="/bouncing">Bouncing Ball</a></li>

<!-- <li class="has-dropdown">

<a href="index.html">Reservation</a> --> </li>

<!-- <li><a href="contact.html">Contact</a></li> -->

<!-- <li class="btn-cta"><a href="#"><button class="signin" onclick="document.getElementById('id01').style.display='block'" style=" width:auto;">Login</button></a></li> -->

</ul>

</div>

</div>

</div>

</nav>

<header id="gtco-header" class="gtco-cover gtco-cover-md" role="banner" style="background-image: url(images/img\_bg\_1.jpg)" data-stellar-background-ratio="0.5">

<div class="overlay"></div>

<div class="gtco-container">

<div class="row">

<div class="row row-mt-15em">

<div class="col-md-12 col-md-offset-0 text-left">

<h1 class="cursive-font" align="center">Results now out!</h1>

</header>

<div class="gtco-section">

<div class="gtco-container">

<div class="row">

<div class="col-md-8 col-md-offset-2 text-center gtco-heading">

<h2 class="cursive-font primary-color"> Download results</h2>

<p>The json and csv document used in parsing the data of 1000 Safaricom customer care callers is available for download </p>

<p>Average Idle Time : {{average\_idle\_time}} </p>

<p>Average Service Time : {{average\_service\_time}} </p>

<a href ="/download/json"><p>View json </p></a>

<a href ="/download/csv"><p>Download csv </p></a>

</div>

</div>

</div>

</div>

</div>

<!-- <div id="gtco-features">

<div class="gtco-container">

<div class="row">

<div class="col-md-8 col-md-offset-2 text-center gtco-heading animate-box">

<h2 class="cursive-font">Our Partners</h2>

</div>

</div>

<div class="row">

<div class="col-md-4 col-sm-6">

<div class="feature-center animate-box" data-animate-effect="fadeIn" "><img style="border-radius: 25px; src="images/download.png">

<h3 class="vendors">La Pino's Pizza</h3>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="feature-center animate-box" data-animate-effect="fadeIn">

<img style="border-radius: 25px;" src="images/45c228661e49ec525172d7102a086ac2\_featured\_v2.png">

<h3 class="vendors">Havmor</h3>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="feature-center animate-box" data-animate-effect="fadeIn">

<img style="border-radius : 25px;" src="images/mp\_607506\_2017-01-19-11-39-53-000813.png">

<h3 class="vendors">BurGrill</h3>

</div>

</div>

</div>

</div>

</div>

</div>

</div> -->

<footer id="gtco-footer" role="contentinfo" style="background-image: url(images/img\_bg\_1.jpg)" data-stellar-background-ratio="0.5">

<div class="overlay"></div>

<div class="gtco-container">

<div class="row row-pb-md">

<div class="col-md-12 text-center">

<div class="gtco-widget">

<h3>Get In Touch</h3>

<ul class="gtco-quick-contact">

<li><a href="#"><i class="icon-phone"></i> +254 700 846 598</a></li>

<li><a href="#"><i class="icon-mail2"></i> mark.muchemi@students.jkuat.ac.ke</a></li>

<li><a href="#"><i class="icon-chat"></i> SCM 211-6355/2015</a></li>

</ul>

</div>

<!-- <div class="gtco-widget">

<h3>Get Social</h3>

<ul class="gtco-social-icons">

<li><a href="#"><i class="icon-twitter"></i></a></li>

<li><a href="#"><i class="icon-facebook"></i></a></li>

<li><a href="#"><i class="icon-linkedin"></i></a></li>

<li><a href="#"><i class="icon-dribbble"></i></a></li>

</ul>

</div>

</div> -->

<div class="col-md-12 text-center copyright">

<p><small class="block">&copy; 2017 Mark Njoroge. All Rights Reserved.</small>

<small class="block">Designed by Mark Njoroge</small></p>

</div>

</div>

</div>

</footer>

<!-- </div> -->

</div>

<!-- jQuery -->

<script src="static/js/jquery.min.js"></script>

<!-- jQuery Easing -->

<script src="static/js/jquery.easing.1.3.js"></script>

<!-- Bootstrap -->

<script src="static/js/bootstrap.min.js"></script>

<!-- Waypoints -->

<script src="static/js/jquery.waypoints.min.js"></script>

<!-- Carousel -->

<script src="static/js/owl.carousel.min.js"></script>

<!-- countTo -->

<script src="static/js/jquery.countTo.js"></script>

<!-- Stellar Parallax -->

<script src="static/js/jquery.stellar.min.js"></script>

<!-- Magnific Popup -->

<script src="static/js/jquery.magnific-popup.min.js"></script>

<script src="static/js/magnific-popup-options.js"></script>

<script src="static/js/moment.min.js"></script>

<script src="static/js/bootstrap-datetimepicker.min.js"></script>

<!-- Main -->

<script src="static/js/main.js"></script>

<div id="id01" class="modal">

<form class="modal-content animate" action="/action\_page.php">

<div class="imgcontainer">

<span onclick="document.getElementById('id01').style.display='none'" class="close" title="Close Modal">&times;</span>

<img src="images/images.jfif" alt="Avatar" class="avatar">

</div>

<div class="container" style="margin-left: 230px;">

<label for="uname" style="margin-right: 4px"><strong>Username</strong></label>

<input style="border-radius: 8px ;" type="text" placeholder="Enter Username" name="uname" required >

<p> </p>

<label for="psw" style="margin-right: 4px"><b>Password</b></label>

<input style="border-radius: 8px ;" type="password" placeholder="Enter Password" name="psw" required>

<p> </p>

<label id="check"><input type="checkbox" checked="choice" name="remember"/>Remember me</label>

<p> </p>

<a id="popup-login" href="indexin.html"><img src="images\login1.jpg"/></a>

<!--<a href="indexin.html"><input href="indexin.html" id="popup-login" placeholder="Login" style="color: white" /></a>-->

</div>

<!--<div class="container" >

<button style="border-radius: 5px " type="button" onclick="document.getElementById('id01').style.display='none'" class="cancelbtn">Cancel</button>

</div>-->

</form>

</div>

<script>

// Get the modal

var modal = document.getElementById('id01');

// When the user clicks anywhere outside of the modal, close it

window.onclick = function(event) {

if (event.target == modal) {

modal.style.display = "none";

}

}

</script>

<script>

function myfunction()

{

alert("Login For Reservation");

}

</script>

</body>

</html>