QA

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Home Service Tech Stream Reskill Programme Outline

Sky Home Service Tech Stream Reskill Part-time Programme

Duration: 1 week followed by 28 evenings (2 evenings a week for 14 weeks)

Client Relationship Director: Sam Gilkes

Lead SME: Victoria Lloyd

Programme Overview

A reskilling programme which is specifically aimed at individuals with a non-technical background in Sky's Home Service and CSG teams who are interested in starting a tech career to become Software Developers.

This programme is delivered over 15 weeks. The first week is full immersion training followed by 14 weeks of 2 evenings per week accompanied by additional self-study. At least one session a week is a Learning Session where new topics are taught. There is also some Tutor Sessions which are short pair catch-ups which are pre-booked appointments and last between 15 to 30 minutes and are an opportunity for homework to be reviewed. The tutor session appointments are scheduled between 6 to 9pm on the allocated evening.

Pre-Learning via Cloud Academy

Pre-course

Cloud Literacy (3 hours)

https://app.qa.com/learning-paths/cloud-literacy-956/

Agile Fundamentals (2 hours)

https://app.qa.com/learning-paths/agile-fundamentals-online-learning-900/

Programme Outline

Week 0 – Setup Event

Week 1 – Modules

Module 1: Intro to Programming

- What is a programme and what is programming?
- Programmer activities
- How do Programmers work?
- Agile and scrum
- Essential Programmer traits
- Pair programming

Module 2: Internet Technologies

- What is the internet?
- Clients, servers and HTTP
- The domain name system
- HTTP request methods and requests and responses
- Web architecture and Python

Module 3: Applications versus APIs

Module 4: HTML

- An intro to HTML
- Headings, links and images and file paths
- HTML tables
- Structural elements, lists and entities

Module 5: CSS

- An intro to CSS
- CSS selectors
- Applying styles
- Inheritance and specificity
- Responsive web design with bootstrap

Module 6: Intro to JavaScript

- What can JavaScript do?
- Where to put JavaScript
- JavaScript syntax

Module 7: Version Control with Git

- What is version control
- Create a repository
- Simple Git commands
- Stage changes
- Commit changes
- Working with remote repositories

Module 8: Intro to Python 3

- What is Python 3?
- Python scripts
- Python help
- Anatomy of a Python script
- Modules
- Functions and built-ins
- An introduction to PyCharm

Module 9: Python Variables

- Python is Object Oriented
- Python variables
- Variable names
- Type specific methods
- Operators and type
- Augmented assignments
- Python types
- Switching types

Week 2 – Modules – Conditionals

Evening 1: Tutor Support Session
Review Week 1 Homework

Evening 2: Python Conditionals
- What is truth?
- Boolean and logical operators
- Chained comparisons
- Sequence and collection tests
- Object types
- While loops
- Loop control statements
- For loops
- enumerate
- Counting 'for' loops
- Conditional expressions
- Unconditional flow control

Week 3 – Module - String Handling

Evening 1: Tutor Support Session
Review Conditionals Homework

Evening 2: Python Strings
- The print function
- String concatenation
- 'Quotes'
- String methods
- String tests
- String formatting
- Other string formatting aids
- Slicing a string
- String methods - split and join

Week 4 – Modules

Evening 1: Tutor Support Session
Review Strings Homework

Evening 2: Collections & File Handling
Tuples
Lists
Tuple and list slicing
Manipulating lists
Sets
Dictionaries
Manipulating dictionaries
Reading from files
Writing to files

Week 5 – Modules

Evening 1: Tutor Support Session
Review Collections & File Handling Homework

Evening 2: Functions
Python functions
Function parameters
Variadic functions
Assigning default values to parameters
Named (keyword) parameters
Enforcing named parameters
Returning objects from a function
Variables in functions
Lamdba functions

Week 6 – Modules

Evening 1: Tutor Support Session

Review Functions Homework

Evening 2: Modules and Packages & Object-Oriented Programming

What are modules and packages?

Multiple source files

How does Python find a module?

Importing a module

Object Orientation:

Classes and OOP

Object-Oriented terminology

Object-Oriented Programming

Using objects

Defining classes

Defining methods

Constructing an object

Special methods

Operator overloading

Properties

Properties and decorators

Class methods

Inheritance

Inheritance terminology

Week 7 – Modules

Evening 1: OOP Continued & Exception Handling

Exception Handling:

Exception syntax

The raise statement

Raising your own exceptions

Evening 2: Coaching + Project introduction (buddy up with Business stream to start scoping requirements and project output)

Week 8 – Module

Evening 1: Tutor Support Session

Review OOP and Exception Handling Homework

Evening 2: MySQL Part 1

An introduction to databases

Relational databases

NoSQL databases

Introduction to MySQL

The Data Definition Language (DDL)

Creating databases

Create table syntax

Week 9 – Module

Evening 1: Tutor Support Session

Review MySQL Part 1 Homework

Evening 2: MySQL Part 2

Data Control Language (DCL)

Data Manipulation Language (DML)

Referential integrity

Drop table/database

Writing SELECT queries

Week 10 – Module (With BA Stream)

Evening 1: Design Thinking Workshop – QADTW tailored (2 x 0.5 days*)2

Evening 2: Design Thinking Workshop

Week 11 – Module

Evening 1: Cyber Security module – looking at the OWASP top 10 vulnerabilities & mitigations available to any development environment

Identify the OWASP Top 10 Vulnerabilities

Recognise and explain how these vulnerabilities could be exploited

Outline potential impact and consequences of web-based attacks

Describe baseline mitigation steps and techniques to prevent common web and application-based attacks

Explore discovery methods for critical security issues

Identify practices to prevent the most common mistakes and lead to more secure software

Evening 2: Flask Part 1

What is Flask?

HTTP methods

Routes

Testing routes with Postman

Week 12 – Module Flask Part 2

Evening 1 & 2: Flask Part 2

Jinja 2 Templates

HTML forms

Database queries and Python

Week 13 – (With BA Stream)

Evening 1: Project work & Coaching

Evening 2: Project work & Coaching

Week 14 – (With BA Stream)

Evening 1: Project work & Coaching

Evening 2: Codility Practise

Week 15 – (With BA Stream)

Evening 1: Present draft presentation to Coach + informal feedback

Evening 2: Final project Showcase

Tech Stream Deliverables:

Week 1 to 12 – Homework Exercise code

Week 13 to 15 – Database Diagrams, Solution Architecture Diagram, Working Product

Week 15 – Final Presentation to present website

In-Programme and Post-Programme Learning via Cloud Academy

In-course

Python for Beginners (6 Hours)
https://app.qa.com/learning-paths/python-for-beginners-637/

JavaScript for Beginners (7 Hours)
https://app.qa.com/learning-paths/javascript-for-beginners-3823/

Solving Real-world Problems with Regular Expressions in Python (2 hours)
https://app.qa.com/learning-paths/solving-real-world-problems-with-regular-expressions-in-python-2079/

Post-course

Foundation Certificate in Cyber Security (11 Hours)
https://app.qa.com/learning-paths/qa-foundation-certificate-in-cyber-security-846/

