**310157**

**Software Development Engineer in Test (SDET)**

**Candidate Brief**

**Please read the following:**

**For internal candidates: I understand my application may be rejected or I may be subject to disciplinary action if evidence of plagiarism is detected. Examples of plagiarism can include presenting the ideas and experience of others, or generated by artificial intelligence, as your own.**

**For external candidates: I understand that if evidence of plagiarism is found in my application it may be rejected. Examples of plagiarism can include presenting the ideas and experience of others, or generated by artificial intelligence, as your own.**

**Overview of the Exercise**

In this exercise you are required to present your solution to the panel.

You will be required to deliver your findings to the panel orally and by Screen Share to deliver your presentation.

**Background Information**

A National Insurance number is a unique number primarily used for the administration of National Insurance in the UK.

New rules have been introduced to determine a person’s National Insurance number.

You have been given a large dataset containing personal details of people who will require a new National Insurance number.

*Note: These are not the actual rules for a National Insurance number and have been altered for the purpose of this exercise.*

**National Insurance number:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| L | L |  | D | D |  | D | D | D | D |  | L |
| Letter | Letter | Optional space | Digit | Digit | Optional space | Digit | Digit | Digit | Digit | Optional space | Letter |
| First name | Last name |  | Year of birth | |  | Random code | | | |  | Country of birth |

|  |  |  |
| --- | --- | --- |
| **Section** | **Description** | **Examples** |
| First name | Initial character of a person’s first name | Joe 🡪 J |
| Last name | Initial character of a person’s last name | Bloggs 🡪 B |
| Year of birth | Last two digits of a person’s year of birth | 1996 🡪 96  2003 🡪 03 |
| Random code | 4-digit code | 1234 |
| Country of birth | Initial character of a person’s country of birth  **Please see the Country of birth table for specific values** | Wales 🡪 W |

**Country of birth**

|  |  |
| --- | --- |
| **Country** | **Code** |
| Wales | W |
| England | E |
| Scotland | S |
| Northern Ireland | N |
| Non-UK | O |

**Presentation Scenario**

You will need to author code which performs the following functions:

1. For each person in the dataset, determine their National Insurance number.
2. Use the determined National Insurance numbers to provide the following:
   1. Count the National Insurance numbers per country (i.e., Wales: 2345, England: 12434 etc.)

You may use **any** reasonable general-purpose programming language to implement your solution. (Your audience will be unlikely to understand deliberately esoteric and obfuscatory toy languages, e.g., Malbolge.)

The code is expected to compile and run successfully. You may use third-party libraries to assist you, but the implementation of task must be original.

You **do not** have to implement testing for this code, **but** you should consider how you might test it since you may be asked about it.

**You must submit your solution at least 24 hours before your interview.** Please provide a link to a public source code repository such as GitHub to [ITSRecruitment@dvla.gov.uk](mailto:ITSRecruitment@dvla.gov.uk)

**The Presentation Task**

You should prepare a short (10 minutes) presentation in advance. You will be asked to present this during the interview.

Your slides and talk **should** cover:

* A working demo of your code against the two criteria
* A general overview of how your code works
* Aspects of the task you enjoyed or disliked
* Aspects of the task you found difficult and why
* Aspects of your code you would improve or change if you refactored it or did the task again

Your slides and talk **should not** cover:

* A line-by-line explanation of the code