ANNEX: Programming and Technological Skills

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Note: The programming and technological skills are classified from 1 to 5.

Scripting Languages: Bash Shell [4/5].

Imperative Languages: Pascal [4/5], and C [4/5].

Multi-paradigm Languages: Visual Basic.NET (2/5), C++ (C Plus Plus) [4/5], Java [4/5], OCaml (Objective Caml) [3/5], C# (C Sharp) [3/5], Typescript [1/5], Python [4/5], Go (Golang) [1/5], Ruby [1/5], Scala [1/5], Lua [2/5], Perl [1/5], and Julia [2/5].

Statically Typed Languages: Kotlin [1/5].

Multi-paradigm Numerical Computing Environment: MATLAB (MATrix LABoratory) [2/5], and Wolfram Mathematica [2/5].

Multi-paradigm Numerical Computing Language: GNU Octave [2/5].

Low-level Languages: Assembly [2/5], and QASM (Quantum ASseMbly) [4/5].

Markup Languages: HTML (HyperText Markup Language) [4/5], and XML (eXtensible Markup Language) [2/5].

Interpreted Languages: JavaScript [3/5].

Style Sheet Languages: CSS (Cascade Style Sheet) [3/5].

Object-relational Database Languages: Microsoft SQL Server [4/5], MySQL [4/5], OracleSQL [4/5], and PostgreSQL [4/5].

Query and Functional Programming Languages: XQuery (XML Query) [1/5].

Server-side Scripting Languages: PHP (PHP: Hypertext Preprocessor) [3/5].

Software Modelling Languages: UML (Unified Modelling Language) [4/5].

Declarative Languages for Software Modelling: OCL (Object Contraint Language) [3/5].

Formal Modelling and Specification Languages: VDM++ (Vienna Development Method Plus Plus) [3/5].

Declarative Specification Languages: Alloy [2/5].

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Declarative Logic Languages: Datalog [3/5] and Prolog [3/5].

Mobile Development Languages: Android [3/5].

Preparation Languages for Documents, Papers and Articles: TeX [4/5].

Hardware, Sensors & Microcontrollers: Arduino [3/5].

Robotics: ROS (Robot Operating System) [1/5].

APIs (Application Programming Interfaces):

    2D and 3D Programming: WebGL (Web Graphics Library) [3/5], and OpenGL (Open Graphics Library) [2/5].

    Document-oriented Databases (NoSQL): MongoDB [3/5].

    In-Memory Data Database Cache Storage: Redis [3/5].

    Real-time Computer Vision Libraries: OpenCV (Open source Computer Vision library) [2/5].

    Open-source Software Graphics Libraries: Mesa3D (Mesa 3D graphics library) [3/5].

    Open-source Computer Tracking Libraries for Augmented Reality Applications: ARToolKitX [1/5].

    Heterogeneous Computing: OpenCL (Open Computing Language) [1/5].

    Centralized Services for Distributed Systems: Apache ZooKeeper [3/5].

    Open-source Stream-Processing: Apache Kafka [2/5].

    Classical Cryptography & Internet Security: Bouncy Castle Crypto [3/5].

    Web Services: REST (REpresentational State Transfer) [3/5], and SOAP (Simple Object Access Protocol) [3/5].

    Parallel Computing Platform in CPUs: OpenMP (Open Multi-Processing) [4/5].

    Parallel Computing Platform in GPUs: CUDA (Compute Unified Device Architecture) [4/5].

      CUDA sub-libraries: CURAND (CUDA RANDom number generation library) [4/5], CUBLAS (CUDA Basic Linear Algebra Subprograms library) [4/5], CUSPARSE (CUDA SPARSE matrix library) [4/5], and CUFFT (CUDA Fast Fourier Transforms library) [4/5].

    JavaScript-based Run-time Environments: Node.js [2/5].

    Intelligent Multi-agent Systems: JADE (Java Agent DEvelopment framework) [3/5].

    Distributed Cluster-Computing: Apache Spark [3/5].

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Web Applications and Inversion of Control Containers: Spring Boot Framework [2/5].

Object-relational Mapping Tool: Hibernate ORM (Hibernate Object/Relational Mapping) [1/5].

JavaScript-based Open-source Framework for Front-end Web Applications: AngularJS (Angular.js) [1/5], and Vue (Vue.js) [1/5].

PHP-based Open-source Framework for Web Applications: Laravel [1/5].

Open-source Front-end Framework for Developing Websites and Web Applications: Bootstrap [1/5].

Open-source Framework for Simulations in Quantum Computing: QISKit (IBM Quantum Information Science Kit) [3/5], Cirq (Google AI Quantum Cirq) [3/5], PyQuil (Rigetti Computing Forest) [2/5], and Q# (Q Sharp) [3/5].

Open-source Framework for Simulations in Quantum Mechanics: QuTiP (Quantum Toolbox in Python) [2/5].

Mobile Application Development: Apache Cordova [1/5], and Ionic [1/5].

Other Programming Frameworks:

Serializing Data & File Formats: Google Protobuffers [4/5], and JSON (JavaScript Object Notation) [4/5].

Web Cross-browser Animated 3D Computer Graphics: Three.js [4/5].

Interactive Diagrams and Graphs on the Web: GoJS [1/5].

Functional Reactive Programming: Bacon.js [1/5], Meteor (MeteorJS) [1/5], and React (React.js/ReactJS) [3/5].

Modular Libraries and Tools for Interactive Content on Web Technologies:

CreateJS: EaselJS [1/5], TweenJS [1/5], SoundJS [1/5], PreloadJS [1/5], and Zoë [1/5].

Client-side Web Development Techniques: AJAX (Asynchronous JAvascript and Xml) [2/5].

AJAX Frameworks: GWT (Google Web Toolkit) [1/5].

Microsoft .NET Libraries & Frameworks:

Server-side Open-source Web Development: ASP.NET [1/5].

Object-relational Mapping: LINQ (Language INtegrated Query) [1/5].

2D/3D Graphics & Game Engines: Unity [2/5], and Blender [2/5].

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Open-source Platform Distributions for Data Science in Python: Anaconda [4/5].

Web-based Interactive Computational Environments in Python: Jupyter Notebook [4/5].

Python-based Software Libraries for Numerical Computation: NumPy [4/5], and SciPy [4/5].

Python-based Software Libraries for Data Science: Matplotlib [4/5], and Pandas [3/5].

Python-based Software Libraries for Machine/Deep Learning: SciKit-Learn [3/5], TensorFlow [3/5], Keras [3/5], and PyTorch [2/5].

Document Preparation System: LaTeX [4/5].

OSs (Operating Systems):

Microsoft: Microsoft Windows [4/5].

Linux/UNIX: Deepin [2/5], Fedora [2/5], Kali Linux [2/5], Linux Mint [2/5], Manjaro Linux [3/5], OpenSUSE [2/5], Parrot OS [2/5], Pop!_OS [3/5], Tails OS [2/5], Ubuntu [4/5], and Zorin OS [2/5].

IDEs & Programming Tools:

Jet Brains IDEs: App Code [1/5], CLion [4/5], Datalore [1/5], DataGrip [1/5], GoLand [1/5], IntelliJ IDEA [4/5], PhpStorm [2/5], PyCharm [4/5], Rider [1/5], RubyMine [1/5], and WebStorm [3/5].

Microsoft Visual Studio IDEs: Microsoft Visual Code [4/5], Unity3D [2/5], and Xamarin for Visual Studio [1/5].

Google IDEs: Android Studio [3/5].

Hardware (Sensors & Microcontrollers) IDEs: Arduino IDE [4/5].

Other IDEs: Eclipse IDE [4/5], Spyder IDE [4/5], NetBeans IDE [3/5], and TurboPascal [4/5].

Assemblers, Command-Shells, Compilers & Interpreters: Free Pascal [4/5], GCC (GNU Compiler Collection) [4/5], GPP (Generic Pre-Processor) [4/5], IPython [3/5], Jasmin [1/5], JavaCC (Java Compiler-Compiler) [2/5], LLVM (Low Level Virtual Machine) [1/5], Microsoft PowerShell [3/5], NVCC (Nvidia CUDA Compiler) [4/5], and YACC (Yet Another Compiler-Compiler) [1/5].

Text Editors: Atom [4/5], Brackets [4/5], JOE (Joe's Own Editor) [4/5], Notepad++ (Notepad Plus Plus) [4/5], SublimeText [4/5], and Vim [4/5].

PL/SQL Editors: Oracle SQL Developer [3/5].

Database Development Environments: Oracle APEX (Oracle Application EXpress) [3/5].

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<u>Other Software Tools & Platforms</u>:

    <u>Virtualization</u>:

        <u>Hardware (Independent Hypervisors)</u>: Oracle VM VirtualBox [3/5], QEMU (Quick EMUlator) [1/5], and VMware Workstation [2/5].

        <u>Operative System Level (Application Containers)</u>: Docker [2/5].

    <u>Data Science</u>: RapidMiner Studio [2/5].

    <u>IoT (Internet-of-Things) & Cloud Platforms</u>: Atmosphere [1/5].

    <u>Hardware Analysis, Design & Synthesis</u>: Xilinx ISE [2/5].

    <u>Software Web Development Stack</u>: WampServer [2/5].

    <u>Administration Tools</u>: phpMyAdmin [3/5].

    <u>UML & BPMN (Business Process Model and Notation) Design Tools</u>: StarUML [4/5], and Modelio [3/5].

    <u>Version-control Systems</u>:

        <u>Web-based Hosting Services</u>: Atlassian Bitbucket [3/5], Azure DevOps [1/5], GitHub [4/5], and GitLab [4/5].

        <u>Git Clients</u>: Atlassian Sourcetree [3/5], Git-Cola [4/5], GitHub Desktop [4/5], and GitKraken [4/5].

        <u>Branching Models for Git</u>: GitFlow [3/5].

<u>Artistic Tools</u>:

    <u>Graphic Design & Photography</u>: Adobe Illustrator CC [4/5], Adobe Lightroom [3/5], Adobe Lightroom Classic CC [3/5], and Adobe Photoshop CC [4/5].

    <u>Video Editing</u>: Adobe After Effects CC [2/5], and Adobe Premiere Pro CC [2/5].

    <u>Web Development</u>: Adobe Dreamweaver CC [2/5].

<u>Basic Office Tools</u>:

    <u>Databases</u>: Microsoft Access [3/5].

    <u>Documents</u>: Microsoft Word [4/5].

    <u>Presentations</u>: Microsoft PowerPoint [4/5].

    <u>Spreadsheets</u>: Microsoft Excel [4/5].