Cloud Computing Technical Handbook

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About WorldSkills UK

WorldSkills UK is a dynamic partnership between education, industry, and the UK governments, dedicated to raising standards in apprenticeships and technical education. As a member of the global WorldSkills movement, which includes over 80 countries, WorldSkills UK empowers young people from all backgrounds through competition-based training and skills development,

At WorldSkills UK, we champion future skills by analysing rapidly changing economic demands and providing professional development through international benchmarking. We are committed to inclusivity, boldness, and positivity in all our endeavours, ensuring that more young people, regardless of their background, can develop their skills to the highest standards and achieve their full potential.

Introduction & Overview

WorldSkills UK is proud to announce the launch of its prestigious Cloud Computing competition, designed to identify and celebrate the brightest emerging talents in the UK's burgeoning cloud computing and artificial intelligence sectors. This competition provides a unique platform to showcase advanced technical skills, problem-solving abilities, and innovative thinking within the dynamic landscape of modern technology.

The Cloud Computing Competition Final is a rigorous two-day event that challenges participants to leverage the power of leading cloud platforms and cutting-edge AI tools to address complex, real-world scenarios. This initiative aims to foster a new generation of highly skilled professionals, ready to drive the UK's digital transformation and contribute to its global competitiveness in the technology domain.

This handbook provides guidelines and descriptions of competencies expected from participants in cloud computing events, as well as information about the stages of the competition.

Competition Objectives:

The primary objectives of the WorldSkills UK Cloud Computing competition are:

Skill Demonstration: To provide a platform for young professionals to demonstrate their proficiency in cloud architecture, data and big data management, and AI/GenAI tool utilisation.

Problem-Solving: To challenge participants to solve unique and complex problems that mirror real-world challenges faced by businesses and organisations.

Innovation and Creativity: To encourage participants to develop innovative solutions and showcase their creative approaches to leveraging cloud and AI technologies.

Industry Relevance: To ensure that the skills tested are aligned with the current and future demands of the cloud and AI industry.

Talent Identification: To identify and nurture exceptional talent, providing opportunities for professional development and career advancement.

Upskilling and Learning: To provide access to resources and training that enable participants to enhance their skills and knowledge in cloud and AI.

Target Audience and Eligibility:

This competition is designed for individuals aged 18-24, however anyone over the age of 16 is welcome to apply. Candidates should be studying towards a Level 3 or 4 qualification in a relevant subject or have completed a Level 3 or 4 qualification in a relevant subject area within the last 12 months. The candidates should possess a strong foundation in cloud computing and artificial intelligence, demonstrating a minimum knowledge level equivalent to AWS Architect, Azure Architect, or Google Cloud Engineer certifications, along with at least one year of practical experience working on one or more of these platforms.

Technical Focus Areas:

The competition will encompass a wide range of technical areas, including:

Cloud Architecting:

- Designing and deploying scalable, secure, and cost-effective cloud architectures.
- Implementing hybrid and multi-cloud solutions.
- Utilising cloud-native services for application development and deployment.
- Understanding and applying cloud security best practices.

Data and Big Data:

- Designing and implementing data pipelines for data ingestion, processing, and analysis.

- Utilising cloud-based data warehousing and big data platforms.
- Applying data analytics and visualisation tools to extract insights from large datasets.
- Implementing data governance and security measures.

AI and GenAI Tools:

- Developing and deploying machine learning models using cloud-based AI platforms.
- Utilising pre-trained AI services for tasks such as natural language processing and computer vision.
- Using GenAI tools to generate content and solve problems.
- Understanding and applying ethical considerations in AI development and deployment.

Related Skills

Participants should have a good understanding of:

- Cloud service models (IaaS, PaaS, SaaS)
- Virtualisation and containerisation
- Networking and security in cloud environments
- Scripting and automation
- Providing cloud storage solutions that meet client's particular needs.
- Monitoring and troubleshooting of Cloud-based systems.

Competition Stages and Schedule.

1. Registration will take place from 3rd of March to the 28th of March.
2. Entry Stage. After registration closes, each applicant will receive an entry stage challenge to complete.
    a. A link to the entry stage task will be delivered by email. This will be a timed task, with a limit of 1 hour to complete from the moment it is accessed.
    b. We recommend that applicants access this task once they are ready to complete it, in a comfortable, distraction-free environment.
    c. The task will be sent to each participant shortly after registration and is due to be completed by the 7th of April.
3. National Qualifiers. After the 7th of April, 40 successful applicants will be informed via email about progressing to the qualifier stage.

a. Each applicant will be assigned to one of the four qualifier dates taking place in May.

b. Each competitor will receive at least four weeks' notice about their Qualifier Stage date.

c. The Qualifiers will take place virtually.

d. The qualifier dates for 2025 cycle are: May 7th; May 14th; May 21st; May 28th.

4. National Finals. Following the final Qualifier Stage date, 8 successful competitors proceeding to the Finals will be informed via email. The final will be held in Wales over two competition days, in the week commencing 24th November 2025.

5. International Competition. Participants of the WorldSkills UK competitions may be eligible to join the UK Squad for international competitions.

    a. Additional eligibility criteria apply to those progressing onto international competitions. Participants must be 22 or under years of age in the year of the international competition to be able to participate.

    b. Upcoming international competitions include Shanghai in 2026 and Japan in 2028. For more information please visit: About the WorldSkills International Skills Competition | WorldSkills UK

General Instructions

- Participants must adhere to the competition rules and guidelines: Competition Rules 2025 - WorldSkills UK
- Respect the competition timeline and submit tasks on time.

Task Breakdown

Entry Test Project

Authenticity Verification of Short Video Clips Using AWS AI

The proliferation of AI-generated content, particularly deepfakes, poses a significant challenge to the integrity of digital media. This project aims to explore and demonstrate the feasibility of utilising Amazon Web Services (AWS) AI technologies to analyse short video clips (30 seconds) and determine their authenticity,

distinguishing between genuine footage and AI-generated content. Participants will leverage a variety of AWS AI services to develop a robust analysis pipeline, focusing on feature extraction, anomaly detection, and classification. The project emphasises practical application and experimentation, encouraging participants to explore different methodologies and approaches within the AWS ecosystem.

Project scope

Video Input: Participants will be provided with a dataset of 30-second video clips, containing both genuine and AI-generated footage.

Analysis Focus: The project will focus on analysing visual cues within the video clips, such as facial features, motion patterns, and temporal inconsistencies, to identify potential signs of AI manipulation.

AWS AI Tools: Participants will primarily utilise AWS AI services but are allowed to incorporate other open source or personal tools as needed.

Output: The project will culminate in a report detailing the methodology, results, and conclusions, including a classification of each video clip as genuine or AI-generated.

International Context

The competition will test your ability in several areas that align with occupational standards as set out by WorldSkills. An Overview of the categories can be found below:

WorldSkills Occupational Standards (National Alignment)		
Section Number	Section	Relative Importance (%)
1	Work Organisation & Management	10
2	Communication & Interpersonal Skills	10
3	Problem Solving, Innovation & Creativity	15
4	Cyber Security	20

5	Reliability, scalability and elasticity	15
6	Performance and optimisation	10
7	Operational considerations	10
8	Sustainability	10
Total Marks (%)		100

Careers

The Job description:

Cloud computing involves delivering various services over the internet, including storage, processing power, and applications. Professionals in this field work with cloud platforms like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud to help organisations manage their IT infrastructure more efficiently. Common job titles include Cloud Engineer, Cloud Architect, Cloud Security Analyst, and Cloud Administrator.

Roles and Responsibilities

The roles and responsibilities in cloud computing can vary depending on the specific job title, but generally include:

- Cloud Engineer: Building and maintaining cloud infrastructure, ensuring systems are secure and scalable
- Cloud Architect: Designing cloud solutions that meet organisational needs, including selecting appropriate cloud services and ensuring integration with existing systems
- Cloud Security Analyst: Implementing and managing security measures to protect cloud data and infrastructure from threats.
- Cloud Administrator: Managing and configuring cloud services, providing support to other teams, and ensuring optimal performance of cloud systems

Career Progression

Career progression in cloud computing typically follows a path from entry-level positions to more advanced roles:

1. Entry-Level: Positions like Cloud Administrator or Junior Cloud Engineer, where you gain foundational skills and experience.
2. Mid-Level: Roles such as Cloud Engineer or Cloud Security Analyst, where you take on more responsibility and specialise in certain areas.
3. Senior-Level: Positions like Senior Cloud Architect or Lead Cloud Engineer, involving strategic planning, leadership, and advanced technical expertise.
4. Executive-Level: Roles such as Chief Cloud Officer or IT Director, focusing on overall cloud strategy and management at the organisational level

Cloud computing offers a dynamic and rewarding career path with opportunities for continuous learning and growth. Whether you're just starting out or looking to advance, there's a wide range of roles to explore in this ever-evolving field.

Health and Safety

- Ensure a comfortable and ergonomic workspace to avoid strain or injury.
- Take regular breaks to rest your eyes and stretch and stay hydrated.
- Follow all safety guidelines provided by the competition organisers.

Judges' Top Tips

Manage Your Time Wisely. Prioritise tasks by breaking them down based on complexity and importance and set milestones to track your progress. Avoid procrastination by starting early, which will give you ample time to troubleshoot any issues that arise.

Stay Calm and Manage Nerves. Practice relaxation techniques such as deep breathing or meditation to help calm your nerves. Maintain a positive mindset by reminding yourself of your preparation and skills and focus on the task at hand rather than worrying about the outcome.

Think Outside the Box. Don't be afraid to propose creative and unconventional solutions. Consider multiple approaches to a problem before settling on the best one, and leverage unique cloud services and features to enhance your solutions.

Plan Thoroughly. Make sure you fully understand the competition requirements and criteria. Develop a detailed plan or architecture for your solution before you start building, and plan how you will use cloud resources efficiently to avoid unnecessary costs.