COMPETENCY PROFESSIONAL				
PROFESSIONAL	SKILL	SUBSKILL	LEVEL	EVIDENCE
	Communication and literacy	Express information effectively to	Expert	Industry: Global speaker: 200+ times including 19 public AI presentations. Recognised AI in media expert.
		technical and non-technical audiences.		UoEO: Distinctions on assignments, written and oral. 4 presentations. ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6), Independent Project (11).
		Documents to aid communication	Expert	Industry: Extensive internal documnents. Expert at PowerPoint presenting. Published articles.
		(reports, diagrams, legal descriptions,	Expert	UoEO: Trained in creating statistical graphs in R, Python and Excel.
		plans, manuals, charts)		ML: Team Project (6), Independent Project (11).
	Commercial awareness	Keep current with industry tools, and	Expert	Industry: 30 years' industry experience. 19 AI speaking engagements since 2023. Read AI news, newsletters.
		emerging technology		ML: Collaborative Learning (8,9,10) on LLMs and GPT, CNN Object Recognition industry application (11).
		Share productivity tool knowledge	Proficient	Industry: Share on LinkedIn and internally any expertise I've gained.
				UoEO/ML: Created WhatsApp groups for students to share questions and insights.
		Professional organisations	Proficient	Industry: British Academy of Film and Television Arts (BAFTA). Former: ACM SIGGRAPH, BCS MBCS.
		Quality, customer satisfaction, fair	Expert	Industry: As Chief Technology Officer (CTO) launched products, overseeing quality assurance and customer care.
		application of policies.		
		Ethical codes of conduct	Proficient	Industry: Google Responsible AI training. Investigating CAI, C2PA, IPTC authenticity / provenance.
				ML: Research in ANN (8), Collaborative Learning (8,9,10), CNN Model Activity (9).
		Computer Science understanding.	Expert	Industry: 30 years' media technology industry. Innovated early video streaming for Virgin Media/Channel 4.
	Subject understanding			UoEO: Distinctions on assignments.
	Critical thinking and analysis	Inconsistencies, gaps, additional	Expert	Industry: 30 years' media technology industry as innovator.
		information.		UoEO: Distinctions on assignments.
				ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6), Independent Project (11), Formatives.
	Research	Explore complex real-world computing	Expert	Industry: 30+ years' industry innovation expertise.
		problems		ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6), Independent Project (11), Formatives (5,8,9,12).
	Time management	Manage time.	Expert	Industry: Project managed and launched successful products. PRINCE-2 certified.
EGAL & ETHICAL	Ethical awareness	Comply with laws	Expert	ML: Do not procrastinate. Early submissions. Distinctions. Industry: 30 years' media technology industry. Launched legally compliant services.
	Ethical awareness		Expert	Industry: Su years media technology industry, Launched regany compliant services.
	Ethical awareness Critical reflection	Privacy and confidentiality	Proficient	Industry: Numerous Non-Disclosure Agreements (NDA). Industry: Public speaking on case studies, including International Broadcasting Convention paper / presentation.
REFLECTION			. renerefft	UoEO: Distinctions in academia. Created eight reflective essays to date.
				ML: Reflection (12), e-Portfolio (12)
	Emotional Intelligence	-	Proficient	Personal: Certified Neurolingustic Programming. Trained Emotional Intelligence, coaching.
OCIAL (CULTURE)	Cultural Awareness	Social (Community) Responsibility	Expert	UoEO: Student Rep. Student WhatsApp.
	Interpersonal	Collaborate effectively in diverse teams	Expert	UoEO: Collaborative Discussions. Team WhatsApp / organiser / chair. Student rep. Cohort WhatsApp.
TEAMWORK)	A second s	to achieve team goals.	5	ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6).
	Academic teamwork	Teamwork to meet objectives. Give and receive constructive feedback	Expert	ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6). ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6). Accept and analyse constructive feedback.
	Feedback Leadership	Leadership and team building.	Expert Expert	ML: Collaborative Learning (1,2,3 and 8,9,10), Learn Project (b). Accept and analyse constructive feedback. Industry: 20+ years Chief Technical Officer (CTO) leadership. Led global teams (APAC, EMEA, Americas).
			-npel t	ML: Led Team Project (6).
OCIAL	Creativity	Create stakeholder sustainability.	Expert	Industry: 30 years' industry. Sustainability in AI for startup. Multi-stakeholder legal deals.
(STRATEGY)	Decision-making	Using multiple data sources.	Expert	30 years' industry experience. Decide tooling and approach for web scraping and ontologies. Research proposal planning.
	Entrepreneurial		Expert	20+ years' startup / SME experience. Came up with novel ontology solution for libraries. Novel research proposal.
	Initiative		Expert	30 years' industry. MSc Al. Addressing issues led to student rep. WhatsApp groups for students.
	Problem-solving	Other's perspectives.	Expert	30 years' industry. Web scraping code, ontology classes, health dataset results, LLM/M&E research proposal.
SUBJECT)	Global citizen	Other's perspectives.	Expert	Personal: International with two passports. Lived in two countries. Industry: Led global role (APAC, Americas, EMEA)
SOBJECT				ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6).
	To a second s	Construction in the descent	Francis	
	Teamwork	Constructively work with viewpoint differences.	Expert	ML: Collaborative Learning (1,2,3 and 8,9,10), Team Project (6). Accept and analyse constructive feedback.
	Community	Community activities.	Proficient	Industry: BAFTA
APPLICATION	WEKA Machine Learning	community detivities.	Trained	UoEO: Evaluated Kaggle banking churn. K-Nearest Neighbours, Decision Tree, SVM, Random Forest.
(IMPLEMENTATION)	Intelligent agent		Trained	UoEO: Simple reflex agent web scraper to scrape citation data from arXiv, search and store.
	Ontology		Trained	UoEO: Simple library ontology incorporating age-appropriate genre search and new releases for books.
	Statistical analysis		Trained	UoEO: Descriptive and inferential statistics and literature for Health Survey for England 2011 data.
	k -means clustering		Trained	ML: Analysed Airbnb NYC 2019 dataset to determine revenue optimisation strategies (6).
DIGITAL	CNN object recognition		Trained Proficient	ML: Five CNN models for object recognition on CIFAR-10 dataset (11). Industry: Used for 20+ years. UoEO: Trained on statistical analysis and charts.
	Microsoft Excel			
DIGITAL	Microsoft Excel Microsoft Word			
DIGITAL	Microsoft Excel Microsoft Word Microsoft PowerPoint		Expert Expert	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations.
DIGITAL	Microsoft Word		Expert	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays.
DIGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees		Expert Expert Proficient Aware	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Use Moodle for courses. UoEO: Parse tree for phrases homework.
DIGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV		Expert Expert Proficient Aware Trained	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Vise Moodle for courses. UoEO: Prase tree for phrases homework. UoEO: Used as data input (R statistical tests) or output (Python agent).
NGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel		Expert Expert Proficient Aware Trained Trained	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Use Model for courses. UoEO: Parse tree for phrases homework. UoEO: Trained on statistical analysis and charts. ML: Used for Team Project (6) analysis.
IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub		Expert Expert Proficient Aware Trained Trained Proficient	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Use Moodle for courses. UoEO: Parse tree for phrases homework. UoEO: Used as data input (R statistical tests) or output (Python agent). UoEO: Trained on statistical analysis and charts. ML: Used for Team Project (6) analysis. UoEO: Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects.
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IGITAL ECHNOLOGIES	Microsoft PowerPoint Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Microsoft Visual Studio Code Prolog Protégé OWL2 Protégé OWL2 Protégé OWL2 Protégé OWL2 Protégé OWL2 Protégé OWL2 Protégé Protégé Protégé Protégé Python IBraries Python		Expert Expert Proficient Aware Trained Proficient Proficient Aware Proficient Trained Aware Trained Trained Trained Trained Trained	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UGC: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC0: Presentations. UGC0: Use Moodle for courses. UGC0: Parse tree for phrases homework. UGC0: Used a data input (R statistical tests) or output (Python agent). UGC0: Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC0: Vagent dialogue homework. UGC0: Vagent Graduble checking R descriptive and inferential statistics and exploring SPSS data. UGC0: Vagent Graduble checking R descriptive and unit tests with PyTest. ML: e-Portfolio (12) UGC0: Vagent single reflex agent. Wagen appropriate genre search and new releases for books. UGC0: Vagent single reflex agent web scraper. ML: All coding assignments UGC0: Virote simple reflex agent web scraper. ML: All coding assignments UGC0: Virote simple reflex agent web scraper. ML: All coding assignments UGC0: Simple reflex agent web scraper unit test. UGC0: Simple reflex agent web scraper unit test. UGC0: Simple reflex agent web scraper unit test. UGC0: Virote simple reflex agent web scraper unit test. UGC0: Programmed descriptive and inferential statistics, including graphs and statistical tests for various data.
HGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Microsoft Visual Studio Code Prolog Protege OWL2 Protege OWL2 Protege OWL2 Protege OUL2 Protege OUL Protege		Expert Expert Expert Proficient Trained Proficient Proficient Aware Aware Aware Trained Trained Trained Trained Trained Trained Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGE : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGE 0: Presentations. UGE 0: Use Moodle for courses. UGE 0: Parse tree for phrases homework. UGE 0: Using dithub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGE 0: Speaker to the provide the provided the provi
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IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Microsoft Visual Studio Code Prolog Protege OWL2 Protege OWL2 Protege OWL2 Protege OUL2 Protege OUL Protege		Expert Expert Expert Proficient Trained Proficient Proficient Aware Aware Aware Trained Trained Trained Trained Trained Trained Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGE : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGE 0: Presentations. UGE 0: Use Moodle for courses. UGE 0: Parse tree for phrases homework. UGE 0: Using dithub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGE 0: Speaker to the provide the provided the provi
AGITAL ECHNOLOGIES	Microsoft PowerPoint Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Microsoft Visual Studio Code Prolog Protégé OWL2 Protégé August Python Ibraries Python Python Ibraries Pytest R R RStudio SPSS WEKA Artificial Neural Networks (ANNs) Correlation and regression		Expert Expert Expert Proficient Trained Trained Proficient Proficient Aware Proficient Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UeEO : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UeEO : Presentations. UeEO : Dearse tree for phrases homework. UeEO : Trained on statistical analysis and charts. ML : Used for Team Project (6) analysis. UeEO : Using GitHub repositories for coding and e-Portfolio. ML : For team and individual projects. ML : Python notebook environment. UeEO : Vareat dialogue homework. UeEO : Vareat for double checking R descriptive and inferential statistics and exploring SPSS data. UeEO : Vareat for double checking R descriptive and inferential statistics and exploring SPSS data. UeEO : Vareat for double checking R descriptive and unit tests with PyTest. ML : e-Portfolio (12) UeEO : Vareat coding HTML, (CSS, Python, Markup, and unit tests with PyTest. ML : e-Portfolio (12) UeEO : Vareat single reflex agent. README for e-Portfolio. ML : READMEs for all assignments. UeEO : Virote library ontology with age-appropriate genre search and new releases for books. UeEO : Virote simple reflex agent web scraper. ML : All coding assignments UeEO : Virote simple reflex agent web scraper. ML : All coding assignments UeEO : Simple reflex agent web scraper unit test. UeEO : Simple reflex agent web scraper unit test. UeEO : Vised adta input (R statistical tests), including graphs and statistical tests for various data. UeEO : Used adta input (R statistical results and graphs. UeEO : Simple reflex adta input (R statistical, results and graphs. UeEO : Worde adta input (R statistical result), UEO : Used adta input (R statistical result), UEO : Worde adta inp
IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Microsoft Visual Studio Code Protoge Dugios Protoge Dugios Python Protoge Dugios Python Python Ibraries Python Python Bisraries PyTest R R Studio SPSS WEEA Artificial Neural Networks (ANNs) Correlation and regression Convolutional Neural Networks (CNNs)		Expert Expert Expert Proficient Trained Proficient Proficient Aware Aware Aware Aware Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC : Presentations. UGC : Use Moodle for courses. UGC : Parse tree for phrases homework. UGC : Used as data input (R statistical tests) or output (Python agent). UGC : Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Vice README for simple reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UGC : Wrote README for simple reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UGC : Virote README for simple reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UGC : Virote README for simple reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UGC : Virote README for simple reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UGC : Use for coding HTML, CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UGC : Coded member, subset and proper subset homework validation. UGC : Virote simple reflex agent web scraper. ML : All coding assignments UGC : Scrapp, Requests, Beautiful Soug 4, pandas ML : folium, GeoPandas, Matputolti, missingno, NumPy, seaborn, SciPy, scikit-learn, shapely, TensorFlow (keras) UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R, SMR, Random Forest for Kaggle banking churn data. UGC : Used for coding and exploring R, SMR, Random Forest for Kaggle banking churn data. UGC : Wiremet (2, 4), ML: Formative (2, 4), ML: Formative (2, 4), ML: Formative (2, 4), ML: Formative (2, 4), Oliver 110 p
AGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Markup Prolog		Expert Expert Expert Proficient Trained Proficient Proficient Aware Proficient Trained	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Use Model for courses. UoEO: Parse tree for phrases homework. UoEO: Trained on statistical analysis and charts. ML: Used for Team Project (6) analysis. UoEO: Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UoEO: Seare tree RADME for simple reflex agent. README for e-Portfolio. ML: Python notebook environment. UoEO: Used for double checking R descriptive and inferential statistics and exploring SPSS data. UoEO: Used for double checking R descriptive and inferential statistics and exploring SPSS data. UoEO: Used for double checking R descriptive and inferential statistics and exploring SPSS data. UoEO: Used for double checking R descriptive and inferential statistics and exploring SPSS data. UoEO: Worke README for simple reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UoEO: Use for coding HTML, CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UoEO: Worke Imple reflex agent web scraper. ML: All coding assignments UoEO: Wrote library ontology with age-appropriate gene search and new releases for books. UoEO: Wrote simple reflex agent web scraper. ML: All coding assignments UoEO: Scrapy, Requests, Beautiful Soug 4, pandas ML: folium, GeoPandas, Matplotlib, missingno, NumPy, seaborn, SciPy, scikit-learn, shapely, TensorFlow (keras) UoEO: Single reflex agent web scraper unit test. UoEO: Programmed descriptive and inferential statistics, including graphs and statistical tests for various data. UoEO: Used as data input (R statistical tests). UoEO: Used as data input (R statistical tests). UoEO: Machine learning: KNN, Decision Tree, SVM, Random Forest for Kaggle banking churn data. ML: Formative (3, 4). ML: Formative (3, 6), (1) ML: Formative (4, 6), (1), Individual project (11) poo
IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel Gogle Colab KQML / VIF JASP Markup Microsoft Visual Studio Code Prolog Protégé OWL2 Protégé OWL2 Consolitation and regression Convolutional Neural Networks (CNNs) k-Means clustering Model performance measurement		Expert Expert Expert Proficient Trained Trained Proficient Proficient Proficient Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC): Presentations. UGC : Use Moodle for courses. UGC : Derive the for phrases homework. UGC : Used adata input (R statistical tests) or output (Python agent). UGC : Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and unit tests with PyTest. ML : e-Portfolio (12) UGC : Usef coding HTML, (CS, Python, Markup, and unit tests with PyTest. ML : e-Portfolio (12) UGC : Usef reasoner and SPARQL Query language. UGC : Wrote simple reflex agent web scraper. ML : All coding assignments UGC : Virote simple reflex agent web scraper. ML : All coding assignments UGC : Simple reflex agent web scraper unit test. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used ata input (R statistical tests). UGC : Used ata input (R statistical tests). UGC : Machine learning: (SND, Celsion Tree, SVM, Random Forest for Kaggle banking churn data. ML : Formative (9, 14), Individual project (11) pooling, ReLU, Softmax ML : Formative (9, 15), Individual project (11) pooling, ReLU, Softmax ML : Formative (9, 16), Individual project (11) pooling on matrix, F1-score, precision, reca
IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML / KIF JASP Markup Microsoft Visual Studio Code Prolog Protégé OWL2 Protégé OWL4 Comparison Comparison All Neural Networks (ANNs) Correlation and regression Convolutional Neural Networks (CNNs) k-Means clustering Model performance measurement First Order Logic		Expert Expert Expert Proficient Trained Proficient Proficient Aware Aware Aware Aware Trained	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Parse tree for phrases homework. UoEO: Parse tree for phrases homework. UoEO: Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UoEO: Sagent dialogue homework. UoEO: Used for double checking R descriptive and inferential statistics and exploring SPSS data. UoEO: Worke README for singher reflex agent. README for e-Portfolio. ML: READMEs for all assignments. UoEO: Worke tibrary ontology with age-appropriate genre search and new releases for books. UoEO: Wrote library ontology with age-appropriate genre search and new releases for books. UoEO: Wrote simple reflex agent web scraper. ML: All coding assignments UoEO: Scrapy, Requests, Beautiful Soug 4, pandas ML: folium, GeoPandas, Matpoltib, missingno, NumPy, seaborn, SciPy, scikit-learn, shapely, TensorFlow (keras) UoEO: Simple reflex agent web scraper unit test. UoEO: Simple reflex agent web scraper unit test. UoEO: Used a data anput (R statistical tests). UoEO: Used a data descriptive and inferential statistics, including graphs and statistical tests for various data. UoEO: Used a data anput (R statistical tests). UoEO: Used a sdata input (R statistical tests). UoEO: Used a sdata input (R statistical tests). UoEO: Used a sdata input (R, statistical tests)
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IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KOML / KIF JASP Microsoft Visual Studio Code Prolog Prolog Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL3 Compositional And Protesses Python Dython libraries Pytest R R Studio SPSS WEKA Artificial Neural Networks (KNNS) Correlation and regression Convolutional Neural Networks (KNNS) K-Means Clustering Model performance measurement First Order Logic Jaccard Coefficient and Distance Set Theory / Truth Tables / Logic		Expert Expert Expert Proficient Trained Trained Proficient Proficient Proficient Trained Aware Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC : Presentations. UGC : Use Moodle for courses. UGC : Parse tree for phrases homework. UGC : Used a data input (R statistical tests) or output (Python agent). UGC : Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Used a data input (R statistical escriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef coding HTML (CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UGC : Usef coding HTML (CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UGC : Virote impler reflex agent web scraper. ML: All coding assignments UGC : Virote simple reflex agent web scraper. ML: All coding assignments UGC : Simple reflex agent web scraper unit test. UGC : Used for coding at TML, Decision Tree, SVM, Random Forest for Kaggle banking churn data. UGC : Used a data input (R statistical tests). UGC : Created 7 FOL competency questions for ontology. ML : Formative (9, 4). ML : Formative (9, 4). UGC : Created 7 FOL competency questions for ontology. ML : Jaccard coefficienet and distance assignment(5) UGC : Created 7 FOL competency questions for ontology. ML : Jaccard coefficienet and distance assignment(5) UGC : Created 7 FOL competency questions for ontology.
IGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colob KQML / KIF JASP Microsoft Visual Studio Code Prolog Prolog Prolog Protegé OVL2 Protegé		Expert Expert Expert Proficient Trained Proficient Proficient Proficient Trained	Industry: Regularly write for industry, publication. Personal: Attempt fiction. UoEO: Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UoEO: Presentations. UoEO: Parse tree for phrases homework. UoEO: Parse tree for phrases homework. UoEO: Used as data input (R statistical tests) or output (Python agent). UoEO: Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UoEO: Suged and any term of the second and the secon
AGITAL ECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KOML / KIF JASP Microsoft Visual Studio Code Prolog Prolog Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL2 Protégé DWL3 Compositional And Protesses Python Dython libraries Pytest R R Studio SPSS WEKA Artificial Neural Networks (KNNS) Correlation and regression Convolutional Neural Networks (KNNS) K-Means Clustering Model performance measurement First Order Logic Jaccard Coefficient and Distance Set Theory / Truth Tables / Logic		Expert Expert Expert Proficient Trained Trained Proficient Proficient Proficient Trained Aware Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC : Presentations. UGC : Use Moodle for courses. UGC : Parse tree for phrases homework. UGC : Used a data input (R statistical tests) or output (Python agent). UGC : Using GitHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Used a data input (R statistical escriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef coding HTML (CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UGC : Usef coding HTML (CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UGC : Virote impler reflex agent web scraper. ML: All coding assignments UGC : Virote simple reflex agent web scraper. ML: All coding assignments UGC : Simple reflex agent web scraper unit test. UGC : Used for coding at TML, Decision Tree, SVM, Random Forest for Kaggle banking churn data. UGC : Used a data input (R statistical tests). UGC : Created 7 FOL competency questions for ontology. ML : Formative (9, 4). ML : Formative (9, 4). UGC : Created 7 FOL competency questions for ontology. ML : Jaccard coefficienet and distance assignment(5) UGC : Created 7 FOL competency questions for ontology. ML : Jaccard coefficienet and distance assignment(5) UGC : Created 7 FOL competency questions for ontology.
AACHINE LEARNING	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KQML/ KIF JASP Microsoft Visual Studio Code Prolog Protegé DWL2 Protegé DWL2 Company Company Python Inbraries Python Dytest R R Studio SPSS WEKA Artificial Neural Networks (ANNs) Correlation and regression Convolutional Neural Networks (CNNs) k-Means clustering Model performance measurement First Order Logic Jaccard Coefficient and Distance Set Theory / Truth Tables / Logic Statistical analysis (R)		Expert Expert Expert Proficient Trained Trained Proficient Proficient Proficient Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC): Presentations. UGC : Use Moodle for courses. UGC : Dearse tree for phrases homework. UGC : Used adata input (R statistical tests) or output (Python agent). UGC : Used adata input (R statistical tests) or output (Python agent). UGC : Used adata input (R Statistical tests) or output (Python agent). UGC : Used adata input (R Statistical tests) or output (Python agent). UGC : Used adata input (R Statistical tests) or output (Python agent). UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef of double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef or double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef or double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef or double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef or double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Usef or coding HTML, (CSS, Python, Markup, and unit tests with PyTest. ML: e-Portfolio (12) UGC : Wrote library ontology with age-appropriate genre search and new releases for books. UGC : Virote simple reflex agent web scraper. ML: All coding assignments UGC : Virote simple reflex agent web scraper unit test. UGC : Simple reflex agent web scraper unit test. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R (B,10) ML : Formative (G, 14) ML : Formative (G, 24). ML : Formative (G, 24) ML : Formative (G, 24). UGC : Created 7 FOL competency
VIGITAL TECHNOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KOML / KIF JASP Markup Microsoft Visual Studio Code Prolog Protogé plugins Protégé plugins Protégé plugins Protégé plugins Protégé plugins Protégé plugins Protégé plugins PyTest R R RStudio SPSS WEKA Artificial Neural Networks (ANNS) Correlation and regression Convolutional Neural Networks (CNNS) k-Means clustering Model performance measurement First Order Logic Jaccard Coefficient and Distance Set Theory / Truth Tables / Logic Statistical analysis (Rk) Exploratory Data Analysis Exploratory Data Analysis		Expert Expert Expert Proficient Trained Trained Proficient Proficient Proficient Trained Aware Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC : Presentations. UGC : Use Moodle for courses. UGC : Dearse tree for phrases homework. UGC : Using data input (Fatatistical tests) or output (Python agent). UGC : Using ditHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Search dialogue homework. UGC : Using ditHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Search dialogue homework. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive angent. README for e-Portfolio. ML : READMEs for all assignments. UGC : Used rocoding HTML, (CS), Python, Markup, and unit tests with PyTest. ML : e-Portfolio (12) UGC : Used rocoding HTML, (CS), Python, Markup, and unit tests with PyTest. ML : e-Portfolio (12) UGC : Virote simple reflex agent web scraper. ML : All coding assignments UGC : Virote simple reflex agent web scraper. ML : All coding assignments UGC : Simple reflex agent web scraper unit test. UGC : Simple reflex agent web scraper unit test. UGC : Simple reflex agent web scraper unit test. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R (data, results and graphs. UGC : Used for coding and exploring R (data, results and graphs. UGC : Used for coding and exploring R (data, results and graphs. UGC : Used for coding and exploring R (data
VIGITAL TECHNOLOGIES VIACHINE LEARNING NUMERACY VIETHODOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GutHub Google Colab KQML / KIF JASP Markup Microsoft Visual Studio Code Prolog Prolog Prolog Dugins Prolog Prolog Polog Protegé Dugins Python Protegé Dugins Python System Correlation and regression Convolutional Neural Networks (ANNs) Correlation and regression Convolutional Neural Networks (CNNS) Set Theory / Truth Tables / Logic Statistical analysis (Excel) Statistical anal		Expert Expert Expert Proficient Trained Proficient Proficient Aware Aware Aware Aware Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC : Presentations. UGC : Use Moodle for courses. UGC : Parse tree for phrases homework. UGC : Used as data input (R statistical tests) or output (Python agent). UGC : Trained on statistical analysis and charts. ML : Used for Team Project (6) analysis. UGC : Using GitHub repositories for coding and e-Portfolio. ML : For team and individual projects. ML : Python notebook environment. UGC : Vised README for simple reflex agent. README for e-Portfolio. ML : READMES for all assignments. UGC : Wrote README for simple reflex agent. README for e-Portfolio. ML : READMES for all assignments. UGC : Wrote README for simple reflex agent. README for e-Portfolio (12) UGC : Used of adouble checking R descriptive and inferential statistics and exploring SPSS data. UGC : Wrote README for simple reflex agent. README for e-Portfolio (12) UGC : Coded member, subset and proper subset homework validation. UGC : Wrote simple reflex agent web scraper. ML : All coding assignments UGC : Scrapy, Requests, Beautiful Soug 4, pandas ML : folium, GeoPandas, MatPARLQ Louver Janguage. UGC : Simple reflex agent web scraper unit test. UGC : Scrapy, Requests, Beautiful Soug 4, pandas ML : folium, GeoPandas, MatPublib, missingen, NumPy, seaborn, SciPy, scikit-learn, shapely, TensorFlow (keras) UGC : Simple reflex agent web scraper unit test. UGC : Used a statistical tests]. UGC : Tormative (9, 10), Individual project (11) pooling, ReLU, Softmax ML : Formative (9, 10), Individual project (11) pooling, ReLU, Softmax ML : Formative (11), Individual project (11) confusion matrix, F1-score, precision, recall, ROC AUC, R-squared UGC : Descriptive, inferent
VIGITAL FECHNOLOGIES VIACHINE LEARNING NUMERACY VIETHODOLOGIES	Microsoft Word Microsoft PowerPoint Virtual Learning Environment Constituency-based parse trees CSV Excel GitHub Google Colab KOML / KIF JASP Markup Microsoft Visual Studio Code Prolog Protogé plugins Protégé plugins Protégé plugins Protégé plugins Protégé plugins Protégé plugins Protégé plugins PyTest R R RStudio SPSS WEKA Artificial Neural Networks (ANNS) Correlation and regression Convolutional Neural Networks (CNNS) k-Means clustering Model performance measurement First Order Logic Jaccard Coefficient and Distance Set Theory / Truth Tables / Logic Statistical analysis (Rk) Exploratory Data Analysis Exploratory Data Analysis		Expert Expert Expert Proficient Trained Trained Proficient Proficient Proficient Trained Aware Trained	Industry: Regularly write for industry, publication. Personal : Attempt fiction. UGC : Essays. Industry: Global speaker (200+ times), with perhaps half using PowerPoint. UGC : Presentations. UGC : Use Moodle for courses. UGC : Dearse tree for phrases homework. UGC : Using data input (Fatatistical tests) or output (Python agent). UGC : Using ditHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Search dialogue homework. UGC : Using ditHub repositories for coding and e-Portfolio. ML: For team and individual projects. ML: Python notebook environment. UGC : Search dialogue homework. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive and inferential statistics and exploring SPSS data. UGC : Used for double checking R descriptive angent. README for e-Portfolio. ML : READMEs for all assignments. UGC : Used rocoding HTML, (CS), Python, Markup, and unit tests with PyTest. ML : e-Portfolio (12) UGC : Used rocoding HTML, (CS), Python, Markup, and unit tests with PyTest. ML : e-Portfolio (12) UGC : Virote simple reflex agent web scraper. ML : All coding assignments UGC : Virote simple reflex agent web scraper. ML : All coding assignments UGC : Simple reflex agent web scraper unit test. UGC : Simple reflex agent web scraper unit test. UGC : Simple reflex agent web scraper unit test. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R data, results and graphs. UGC : Used for coding and exploring R (data, results and graphs. UGC : Used for coding and exploring R (data, results and graphs. UGC : Used for coding and exploring R (data, results and graphs. UGC : Used for coding and exploring R (data