Daily Programme The Young Software engineer

Day 1 – Enter the experience

2:00pm**Start**

Over the next five days, you will explore the versatility of software engineering, the youngest and most in demand of the engineering sciences. You will learn about front-end engineering and User Experience/User Interface and back-end engineering. You will apply software engineering , data science and cybersecurity and understand the role that software has in predicting the future and keeping people, companies, and organisations safe. In addition you will experience AI and robotics, including meeting with leading robots and their engineers. This part of the Experience has been designed to enhance your knowledge of software and the industry, your programming skills and your creativity.

Afternoon**The Experience Begins**

- Your journey starts here: step into the shoes of a top software engineer
- Keynote speech by the Experience Director: discover what the Experience has in store and how to make the most of this unique experience
- Immersive group activities: develop crucial software skills for the Experience ahead, including algorithms, coding, teamwork and attention to detail
- Interactive networking session: meet your fellow students – talented and ambitious students from around the world who can act as prove powerful contacts for your future career

6:00pm**Close**

Day 2 – Front-end engineering

10:00am**Start**

Explore the Front-end, also known as client side, of engineering including the most important software building tools including HTML, CSS, JavaScript and discovering the importance of good User Experience and User Interface

Morning**UX/UI**

-Explore how colour and shapes impacts the psychology of a customer and how correct use can ensure a customer chooses your app
- Find the strengths and weaknesses in design and determine whether it will help or hinder the customers use of a website
- The phases of working with a prototype: the different approaches and techniques used when creating a new design
- Client – Designer interaction: how to gather requirements, analyse them, build a prototype and pitch it

Afternoon**Front-end Engineering**

- Software engineering applied to the most cutting-edge industries: exploring the past, present and future of technologies and your role in creating them
- Compete against other teams in a dynamic, vibrant atmosphere that will immerse you in the world of software engineering
- The fundamentals of the web: HTML, CSS, and JavaScript. Discover the most important and most popular technologies used in front-end engineering
- Develop a front-end application for a start up using your newly discovered skills

5:00pm**Close**

Day 3 – Back -end engineering and network security

10:00am**Start**

Turn your attention to the back-end / server-side engineering. Discover how to code efficiently and the hardware required to maintain a system and its vulnerabilities

Morning**Back-end Engineering**

- Explore the main algorithms, discover how to think algorithmically and solve programming problems efficiently
- Get hands-on creating the back-end of a full-stack project using one of the most popular back-end languages: Python
- Learn how to store data in a relational database and apply it in the full-stack project
- Solve problems by thinking like a Software Engineer: common methodologies, tricks and tips to perform better when coding

Afternoon**Networks & Cybersecurity**

- Hardware can be hacked too: discover the ins and outs of computer hardware and its vulnerabilities
- Explore the biggest risks to computer networks and the sophisticated techniques cyber criminals use to target them
- Lead your team to victory in a race to design the most efficient network for a large international organisation
- Prepare a report for the organisation identifying potential network security risks and proposing mitigation techniques
- Receive valuable live feedback from experts in cyber security

5:00pm**Close**

Day 4 – Software and data: solving climate change

10:00am**Start**

Work on a project to protect the planet by using software optimisations and algorithms explored over the previous days

Morning**Tech firms fighting Climate Change**

-Explore how top firms are tackling climate change by using software, data science and artificial intelligence
- Discover how these firms have incorporated technological advancements to implement strategies to confront previously unsolved issues
- Led by data: Evaluate how data has driven the decisions and practises of these firms throughout their journey to success
- Demonstrate your understanding of the world of data science by pitching further potential solutions to save our planet

Afternoon**Data and Software to the rescue**

- Explore how climate change and global warming is severely impacting an 'at-risk' region and how the society is in desperate need of a realistic plan
- Examine predictive climate models to determine the extent of the disruption global warming is projected to cause on this area in the next 50 years
- Take action: Using your knowledge of Artificial intelligence, machine learning and the automation industry decipher plausible solutions to save this society from devastation
- Pitch your solutions to leading data scientists and software engineers, and receive detailed feedback

5:00pm**Close**

Day 5 : Robotics and AI

10:00am**Start**

Discover the growing world of Robotics and AI and the enormous market for newer, better hardware and functionality

Morning**A World of Robotics**

- Introduction to robotics and the most successful and highest functioning robots in existence today
- Discuss the future and moral dilemmas of robotics
- Understand software required in the field of robotics and meet pioneers turning science fiction into reality
- Devise a unique application for robotics and automation and identify the positive impact they can have on society and the potential downfalls of an increasingly automated workforce.

Afternoon**Career Coaching: How to Become a Successful Software Engineer**

The core knowledge you need to plan your pathway to becoming a top software engineer…

- Your path to success: understanding the key decisions ahead and how to maximise your chances of success
- Subject choices at A-level/IB/university and more
- Securing work experience, designing impactful CVs/resumes and powerful interview techniques
- Coaching from experienced software engineers on what you can do now to stand out in the future

5:00pm**Close**

Day 6 – Cyber security day

10:00am**Start**

Now you've mastered the fundamentals of software engineering, developed your own app and understood the relationship between software, hardware and data science, it's time to put your skills into practice. Over the next five days, you will work alongside numerous other disciplines and understand how software, programming and data have influenced industries including medicine and financial technology. You will then work against the clock in teams to take part in an immersive two day game jam with indie game experts to develop a world beating video game. As well as this, you will step into the shoes of a cybersecurity expert and complete an immersive Red Team/Blue Team activity to secure the network of a tech giant. Finally, you will undertake a private networking event at a central London location and rub shoulders with industry leaders in software, cybersecurity and data science.

Morning**Visit a World-Renowned Cyber Security Agency**

- Take a tour around a leading cyber security organisation: engage with leading industry professionals and discover the core concepts at the intersection of politics and cyber security
- Discover how cybersecurity is an essential service for businesses of all sizes and for the security of nation states
- Understand the threats you face from cyberattacks, and the key steps you can take to protect yourself against potential attackers

Afternoon**Secure the Network of a Tech Giant**

- Perform your first Red Team/Blue Team exercise: a core cybersecurity assessment process designed to gauge the strength of an organisation's security measures and identify where improvements can be made.
- Conduct an analysis of the company's security systems to identify vulnerabilities

- Anticipate future attacks and develop remediation strategies
- Offer guidance to the company's IT team by proposing improvements to their security protocols

5:00pm**Close**

10:00am**Start**

Today you will step into the shoes of a video game designer and understand the exciting worlds of level design before considering the mechanics of UI/UX

Morning**The Level Designer**

Step into the shoes of the level designer and put your skills to the test in the InvestIN Game Jam 2022

- Discover the principles and work methods loved by world-leading level designers
- Learn how to release exciting new updates to develop and evolve a game whilst preserving its unique identity
- Explore how level designers make the most of current gaming trends to expand their player base
- Now it's your turn: decide the pace and flow of your game and outline all possible outcomes

Afternoon**UI/UX Designer**

Step into the shoes of the User Interface/User Experience designer and put your skills to the test in the InvestIN Game Jam 2022

- What makes for successful UI/UX design? Uncover the core principles governing playability
- Learn what makes for a great looking UI that is intuitive, easy-to-use and engages players
- Discover different approaches to UI/UX in video game design and how they impact the player's immersion within the game
- Empathy is key: step into the player's shoes and evaluate the usability, accessibility, and style of game UIs across a variety of genres

5:00pm**Close**

10:00am**Start**

Now you've designed the basics of your indie game, work with your teams to finalise it before pitching it to a panel of experts at an iconic tech venue

Morning**The Product Launch**

With your level design and UI/UX mastered, consider what makes a successful video game and see how indie game studios break into the main stream

- Develop your team's concepts into a finalized product
- Prepare your pitch and present your creation in the Dragon's Den
- Network with other teams and size up your competition – does your game have what it takes to win?
- The winning team will receive a professional mock-up of their video game to take home

Afternoon**Race to the Finish Line**

It's time to reveal the winners of the InvestIN Game Jam 2022! Visit an iconic tech venue and present your game to a panel of video game industry leaders

- Time is running out! Add the final touches to perfect your video game
- Name your game and write an exciting description for the App store to convince users to download it!
- Your time to shine: show off your finished product at an iconic East London tech city location and discover your peers' creations
- Who will be crowned the winners of the InvestIN Game Jam 2022? Receive valuable feedback from experts in video game design and development and see if your game has what it takes

5:00pm**Close**

Day 9 – Software architecture and medtech

10:00am**Start**

Step into the role of software architect and work closely with your stakeholders to define the software blueprint for a MedTech start-up.

Morning**Software Architecture and Design**

- You will now be assigned the role of a software architect for an international company
- Compete against other teams in a dynamic, vibrant atmosphere that will immerse you in the real world of software engineering
- Explore the different layers within software and understand how architecture defines behaviour
- Explore the first phase of the software development life cycle, software design
- Examine the SOLID principle to create flexible and modular software designs

Afternoon**The MedTech Project**

- Explore the evolution of health technology, latest innovations and what the future holds
- Use principles of software architecture and design to plan your own health-tech app for remote medical care including key considerations surrounding data handling, app design and patient data security
- Suggest how technology can support patients with post-surgical and after hour care at home
- Use technology to empower patients to track their own medical care
- Present your projects to leading medical professionals and receive live feedback

5:00pm**Close**

Day 10 – Fintech

10:00am**Start**

Develop an educational investment app as you discover the multi-billion FinTech revolution

Morning**Fintech Visit**

- Put your software engineering credentials to the test as you tackle a complex assignment alongside experts from a range of professional backgrounds including finance, software and entrepreneurship

- Work in teams comprised of the fastest growing industries in the modern world and assign project roles that reflect individuals' areas of expertise
- Display your team's project at an exclusive Fintech fair attended by industry leading professionals
- Receive live feedback on your work from the experts and reflect on your team's performance

Afternoon**Private Networking Event**

- Put your newfound knowledge to the test
- Take part in a private networking session with top software engineers, QA testers, UX/UI professionals, product managers and project managers
- Have your burning questions answered by those in the know
- Receive valuable advice from experts in the field

5:00pm**Close**

Day 11- Careermax week

10:30am**Start**

Over the next five days, you will receive personalised coaching on how to succeed in each of the major milestones on the road to landing your dream job: i) securing a place at a top-tier university ii) excelling in your studies iii) mastering every aspect of the recruitment process and procuring a top job in software engineering post-university. In addition, you will receive inspirational coaching on key employability skills from high-profile figures including politicians and Olympic athletes.

Morning**Enter CareerMax**

Your future starts now: discover the essential skills needed to thrive in software engineering

- Personal development plan: work with a careers expert in small focus groups to plan the next steps in your journey
- 'Big results require big ambitions': hear from a world-class Olympic athlete on the importance of being a self-starting, ambitious individual in today's increasingly competitive climate
- 'The art of communication is the language of leadership': hear from a high-ranking politician on how best to improve your communication skills and captivate a large audience

Afternoon**University Applications**

You're in your final year of school and it is time to start thinking about what comes next

- Inside UCAS: an interactive session with a university admissions expert, with guidance on how to ace your applications and bag your first-choice university
- University and degree choices: making the right decisions to maximise your career potential
- Eye-catching extracurriculars: using extracurricular activities to boost your application
- Personal statement workshop: expert coaching on the art of personal statement writing
- Interview training: a masterclass with senior admissions tutors from top UK universities
- You become the admissions officer: step into the shoes of a university admissions tutor; review a collection of personal statements and interview prospective students for a place at a world-renowned educational institution

5:00pm**Close**

Day 12 – Enter Cambridge University

10:30am**Start**

Morning**Welcome to University!**

Congratulations! You have been accepted into your first-choice university – it's time to start preparing

- University tour: private tour of the University of Cambridge led by students, who will guide you through the abundant opportunities available to you there
- Academic lecture: meet academics from the Department of Computer Science and experience a university style lecture
- Meet the university team: attend an exclusive networking lunch with students and academics

Afternoon**Step into the Shoes of a Student**

- The academic seminar: discuss the contents of the morning lecture in a seminar group led by an academic, reflect on the topics raised with likeminded individuals and begin to generate your initial hypotheses
- The research project: work effectively as part of a team to research and plan for a knock-out group presentation
- The group presentation: present your team's finding to your peers and academics
- The feedback: receive feedback on your presentation and reflect on your team's performance

5:00pm**Close**

Day 13 – Graduate Recruitment: applications and interviews

10:30am**Start**

Morning**Graduate Applications**

You're in your final year of study and it is time to start thinking about life after university

- Standout work experience: learn the importance of securing relevant work experience and the impetus it can add to your graduate job applications
- Killer CVs: crack the code to the perfect CV with industry recruitment experts and hear from hiring managers from the software industry on what they are looking for in candidate resumes
- You become the hiring manager: step into the shoes of a senior hiring manager working at tech giant as you screen a set of graduate CVs and select which candidates you would like to interview

Afternoon**Graduate Interviews**

The graduate recruiter was impressed by your knockout CV and you have now been invited to interview for the role…

- Interview workshop: receive bespoke public speaking training on how best to articulate yourself during high-pressure, professional situations such as interviews and presentations
- You become the graduate interviewer: interview candidates for a graduate role alongside senior recruitment managers and put them through their paces with a series of challenging scenario-based questions
- Reflection: return to your focus groups and review the goals you set for InvestIN's CareerMax week. What have you achieved so far? What would you like to work on over the final two days? What questions do you need answering?

5:00pm**Close**

Day 14 – Graduate recruitment: assessment centres

10:30am**Start**

Morning**Enter the Assessment Centre**

Congratulations! You have nailed the initial interview for a graduate role at a tech giant and are among the top-ranked candidates invited to the final stage assessment centre

- Graduate assessments: discover the different types of activities you will be faced with during an assessment centre and the core competencies that recruiters are looking for
- Psychometric tests: experience a series of psychometric tests that will gauge your suitability for your dream role and receive feedback on your performance
- In tray exercise: tackle a series of challenging in tray exercises and impress your prospective employer with your calm and organised approach to work

Afternoon**The Group Exercise**

- The task: Receive an exciting technical group exercise brief, meet your group and establish individual members' strengths and areas of expertise
- Group discussion: master the art of managing discussions during group assessment centre activities as you collaborate with your team and evaluate one another's contributions
- Key skills: manage your time effectively and wow the assessors with your outstanding approach to teamwork and leadership
- The assessment interview: keep a cool head as you tackle a series of challenging group interview questions and impress your prospective employer with your responses

5:00pm**Close**

Day 15 – personal development plan

10:30am**Start**

Morning**Personal Development Plan**

- Personalised feedback: receive a bespoke summary of your performance during the day 14 assessment centre, including your strengths and areas for development
- Group reflection: return to your focus groups and reflect on what you have achieved throughout InvestIN's CareerMax week
- Personal development plan: work with a recruitment expert to establish your next steps and create your very own personal development plan
- Farewell speech: a review of what you have gained from the Experience, with closing remarks from the Experience Director

1:00pm**Close**

*Exact programme subject to change