Game developer

Also known as game programmers, game developers use their technical knowledge to translate concepts and designs into finished products

As an employed or self-employed games developer, you may work across PC, console, online, arcade, and mobile game projects, supplying the technical expertise to bring them to fruition. You'll often specialise in a particular area of the project.

The game development process can differ depending on the size of the game itself, or the studio behind it. For example, working on a prestigious, multi-format AAA game with a higher budget and marketing costs will likely involve a very specific area of focus. Whereas an indie game on one format released by an independent publisher, may be produced by a small group of staff or even solo, and programming and design tasks might be combined.

The making of a game from concept to finished product can take years and involve teams of professionals. There are several stages, including deciding on the initial idea, genre and setting, defining the mechanics of the game and how the player character interacts with the game world, identifying a particular look and art style, animating characters and objects, creating audio, programming, localisation, testing, editing and producing.

With the advent of downloadable content (DLC) and live-service games, you don't just work on a product during release and you might be involved in its evolution long after a customer has purchased it.

Game developer can refer to a company as well as an individual and job titles can vary so bear this in mind when looking for jobs.

Types of game developer

Typically, on a reasonably-sized game development project, there will be a lead developer or programmer and then a team of other developers who will focus on different aspects of the project.

Areas of specialism include:

- game engine - either creating an in-house game engine, or using an off-the-shelf product like Unreal or Unity

- tools

- graphics

- animation

- rendering

- mechanics - the 'rules' of the game and what happens in a given situation

- user interface - for example, the Heads Up Display (HUD) that gives players information, or in-game menus (a background in UX is helpful for this)

- audio

- artificial intelligence - typically based around the actions of non-player characters (NPCs) and how they interact with player characters (PCs) throughout the game

- level design.

Responsibilities

As a game developer, you'll need to:

- collaborate with other professionals such as designers to understand their requirements and work together towards a shared vision

- design, develop and deliver systems and high-quality code using programming languages; C++ is the industry standard, though many others may be used including C#, Visual Studio, DirectX, Python, Erlang, and Perforce

- perform code reviews to ensure code quality

- refactor code to improve the design of existing code

- quality test coding in a systematic and thorough way to find problems or bugs and record precisely where the problem was discovered

- debug programs and solve complex technical problems that occur within the game's production

- attend regular meetings with other game development or design professionals to discuss progress and share best practice

- perform effectively under pressure and meet deadlines to ensure a game is completed on time.

Depending on the role you may also:

- develop designs or initial concept designs for games including game play

- generate game scripts and storyboards

- create the visual aspects of the game at the concept stage

- use 2D or 3D modelling and animation software, such as Maya, at the production stage

- produce the audio features of the game, such as character voices, music and sound effects, and synchronise these elements to player actions or environmental triggers (e.g. weather).

In a more senior position, you might:

- have responsibility for technical strategy and execution of projects from concept to market

- plan resources and manage both the development team and the process.

Salary

- Typical starting salaries are around £19,000 to £25,000.

- Once you have a few years' experience, you may earn a salary of £35,000 to £50,000.

- Once you're in a senior position, such as team leader or technical director, your salary can range from £55,000 to in excess of £75,000.

Salaries vary depending on your specialist area, as well as on the type of company you work for, its size and location. Some companies offer bonuses or a profit-sharing scheme.

Income figures are intended as a guide only.

Working hours

Developers often work a 40-hour week, although the role offers some flexibility and you won't necessarily work 9am to 5pm. When deadlines approach, it is common in the industry to expect developers to work additional, and often unsociable, hours to get the project finished.

Related case studies

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[Joshua Garrity](#)

[Head game scout](#)

What to expect

- The role is typically office, studio or production house based, but remote and hybrid working are now also commonplace. Team members may be located remotely, either in the UK or other parts of the world.

- Jobs are available throughout the UK although the largest concentrations are in London and the South East, the Midlands, and major cities such as Bristol, Cardiff, Sheffield, Manchester and Edinburgh. With remote working practices, some UK game developers have established offices in Europe and elsewhere, taking advantage of lower overheads and staffing costs.

- The working environment is often informal; bigger game studios sometimes install great amenities in workplaces to encourage creativity and greater wellbeing. The dress code is usually casual, although this may depend on the amount of client contact you have.

- The common expectation to work additional hours to finish projects on time, often in evenings and at the weekend, can have an impact on your personal and social life.

- You may need to travel occasionally to meet clients, attend training courses or carry out research.

- Traditionally, game development was a very male-dominated industry. It is only recently that efforts have been made by development companies and studios to diversify their workforce. See Diversity in Tech for more information on initiatives.

Qualifications

Although you can become a games developer with any degree subject, employers often look for a degree, HND or foundation degree in:

- computer games (development or design)

- computer games programming

- computer science

- games technology

- mathematics

- physics

- software engineering.

The role involves a lot of technical expertise and problem solving, so a background in mathematics or physics can be very useful. You will need to be proficient in relevant programming languages, with C++ in particular being vital as it is used across the industry.

If your work includes design as well as development, a degree in a subject such as animation, interactive media, games design and art or graphic design may be useful. The Independent

Games Developers' Association (TIGA) accredits a number of [games courses](#) at both undergraduate and postgraduate level.

Entry without a degree, HND or foundation degree is sometimes possible, particularly if you have relevant experience, although most people who work in games are graduates.

An alternative route into games development is as a quality assurance technician or tester. Although you don't need to have an HND or degree for this role, some programming experience is desirable, as well as extensive experience of game playing, an understanding of different styles, and platforms and database skills. Alternative experience, such as creating videogame mods or administrating communities of fans for particular games, can be useful to make contacts and add value when you're seeking a way into the industry.

Although having a postgraduate qualification isn't essential it might be useful, especially if your first degree or HND doesn't involve a games specialism element.

With the increasing popularity of games and advances in technology, the industry offers a range of opportunities, but competition is intense at all levels and you'll need to demonstrate a high level of commitment and achievement. Work experience, contacts and a portfolio of completed projects, whether individually produced game demos or released products, is vital.

Skills

You will need to have:

- technical ability, in particular familiarisation with a range of programming languages and/or software packages

- teamworking skills to liaise with other developers and other teams involved in making a game

- self-motivation and the ability to work independently on your own projects

- a creative and innovative approach to solving complex technical problems

- communication skills

- flexibility to meet deadlines and client requirements

- organisational skills to manage and prioritise your workload effectively

- attention to detail

- a forward-thinking approach to work and willingness to keep learning and developing your skills

- enthusiasm for and knowledge of the games industry.

Work experience

A portfolio of completed projects is vital to prove to employers what you can do. The ability to code in programming languages such as C++, scripting experience and knowledge of specific software tools are also useful skills. For design roles, you should also have a portfolio of your artistic work.

Relevant work experience gained, for example, through an industrial placement during your degree, is also valuable and may help you to network and build contacts.

A strong interest in games and a knowledge of the industry is vital. You could start out by programming your own simple games to refine your technical expertise and development skills and exhibit your capabilities. You could market these on digital distribution sites such as itch.io, which host thousands of games, assets and related media.

You could also take part in game jams - events where independent developers work solo or in small teams to create games over a period of 24 to 72 hours. You can also get involved in online forums to increase your knowledge of current industry hot topics and read games development websites and magazines.

Find out more about the different kinds of [work experience and internships](#) that are available.

Employers

Employers are mainly games developers or games publishers. Developers can be distinguished in the following way:

- **first-party developers** who make games but also the hardware to play them on (e.g. Microsoft, Sony)

- **second-party developers** who make games for specific platforms

- **third-party developers** who have contracts with game publishers to develop and release their own games.

Development studios can be owned by larger publishers or smaller independent companies - the latter may use digital distribution channels to sell their games to consumers. The game industry operates regionally, nationally and internationally.

Games production companies and studios vary in size from small companies employing fewer than five people to multinational studios employing hundreds of people across the globe.

Games are created in a variety of different forms and as well as being used for PCs, tablets and games consoles, they can be commissioned by such diverse clients as:

- educational institutions

- streaming companies and traditional broadcasters

- organisations seeking to recruit, such as the Armed Forces

- information providers such as local and national government

- marketing and advertising agencies

- mobile phone companies

- design companies.

There are a large number of corporate acquisitions of game studios by first-party developers and other companies, such as Microsoft and Embracer Group. These acquisitions have been affected by the post-pandemic slowdown in gaming and this has resulted in large numbers of job losses across 2023 and early 2024, with a bleak short-term outlook for some companies.

Project work accounts for a considerable proportion of employment in this field. Fixed-term contracts or freelance work may be available and there are opportunities to work on a [self-employed](#) basis.

Look for job vacancies at:

- [GamesIndustry.biz](#)

- [Games Jobs Direct](#)

- [Hitmarker](#)

- [MCV Jobs](#)

- [Remote Game Jobs](#)

- [Technojobs](#)

- [TIGA jobs](#)

Specialist recruitment agencies handle vacancies for games development. Examples include:

- [Aardvark Swift](#)

- [Amiqus](#)

- [Datascope](#)

- [GameLogic](#)

- [Haptic Recruit](#)

- [InGame Recruitment](#)

Entry-level jobs are rarely advertised so it's important to build up contacts in the industry. Approach companies speculatively, making sure you do your research first and target your application accordingly. For lists of UK games developer/video games companies and publishers, see [UK Interactive Entertainment (Ukie)](#).

Professional development

You'll typically begin at a junior level and will train on the job under the supervision of a more experienced lead developer. Some companies develop their own software, specific to their needs and much of the training for this is done in-house.

As the games development industry is fast-moving, with changing technology, software packages and working methods, you must be willing to manage your own learning, teach yourself new skills and keep up to date with technological developments and new trends in the gaming industry.

It's also possible to study at postgraduate level to develop your skills in a specialist area of games development. Courses in subjects such as games programming, software development and game engineering are available.

[Search for postgraduate courses in computer game design](#).

Career prospects

Career progression within games development can be relatively fast. Many who enter the industry at junior level end up at lead level within five to seven years and can reach senior level within their first ten years. Senior-level positions include technical directors, developers, producers and team managers.

It's also possible to specialise in the developing areas of the industry such as wireless platforms, interactive game applications and online gaming.

There are also opportunities to develop your career overseas. Games development jobs can be found in countries such as Japan, the USA, Canada, Germany, France and Scandinavia.

Working freelance or setting up your own development studio is possible once you've built up experience.