

Computer Programmers

A guide for newcomers to British Columbia



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1. Working as a Computer Programmer [NOC 2021: 21230 & 21232 / NOC 2016: 2174]

Job Description

Computer programmers and interactive media developers write, modify, integrate and test computer code (the detailed and logical instructions that computers follow in order to function).

Computer programmers design software programs and write code using a variety of computer languages for personal computers, mainframe and mobile software applications, information systems applications, operating systems-level software, and communications software. You may perform these duties:

- Edit, integrate and test the code to make sure that the program produces the expected result
- Maintain existing computer programs by making changes, as required
- Identify and communicate technical problems, processes and solutions
- Prepare reports, manuals and other information on the status, operation and maintenance of software
- Help collect and record user needs

Interactive media developers write, test and maintain computer code for internet applications, computer-based training software, computer games, film, video and other interactive media. You may perform these duties:

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- Program animation software to pre-set specifications for interactive forms of media, including video games and internet-based and mobile applications
- Program special-effects software for film, television, video, online and mobile applications
- Write, edit, integrate and test software code for e-commerce and other online and mobile applications
- Help collect and record user needs

Computer programmers and interactive media developers may lead and co-ordinate teams. You may also research, review and recommend a variety of software products.

More information:

- **Work BC Career Profiles for Computer Programmers**
<https://www.workbc.ca/Jobs-Careers/Explore-Careers.aspx>
- **Career Cruising Database (Profile for Computer Programmer)**
<https://www.vpl.ca/digital-library/career-cruising>
Available from the VPL Digital Library | Explore our Digital Library page

Industry Overview

The growing use of information technologies and mobile devices is increasing the demand for computer programmers. New job opportunities are also arising in industries such as health care, telecommunications and justice systems as these organizations move to automation.

You will have an advantage finding employment if you have knowledge of more sophisticated computer programming languages and experience working with a variety of different programs. It is important to continually upgrade your skills to remain competitive.

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Interactive media is becoming very popular. This covers a wide range of products, from multimedia for training or presentations to web-based databases. Computer programmers who specialize in this area and have information design skills will be in high demand.

Source: WorkBC Career Profile

Job Outlook in BC, 2021-2031

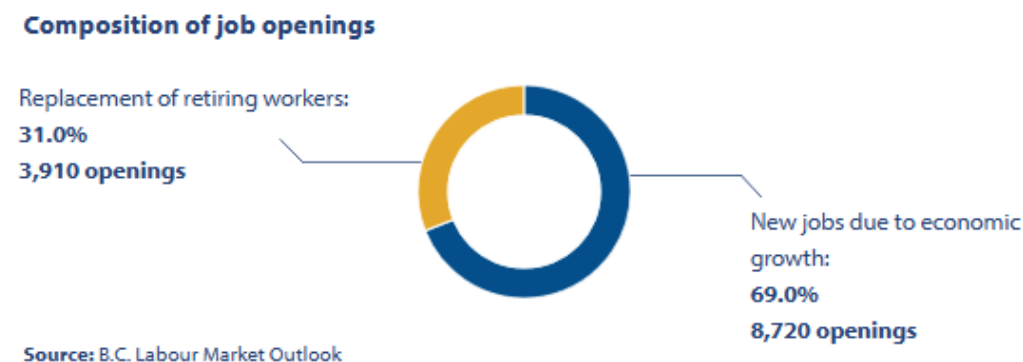
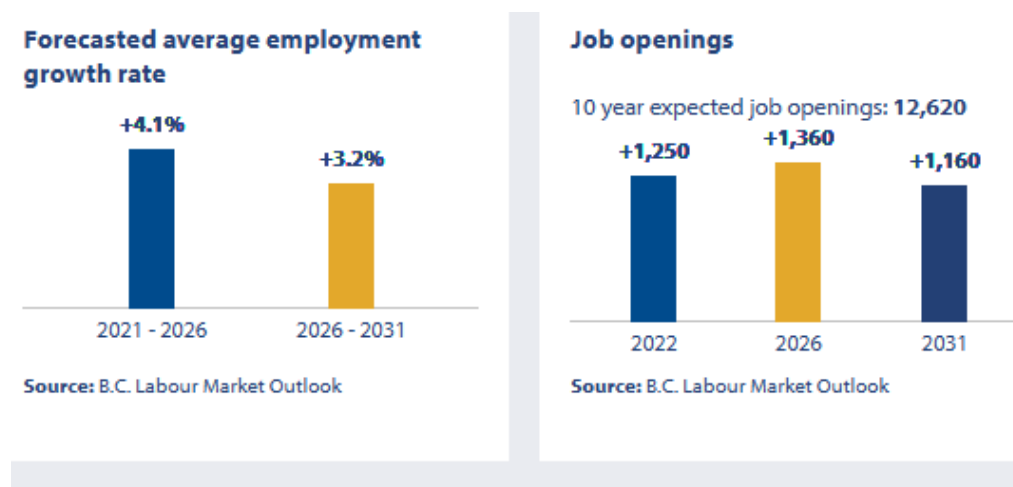


Chart from WorkBC

Employment outlook by BC region:

Cariboo		Kootenay	
Employment in 2021:	100	Employment in 2021:	180
Average annual employment growth(%) 2021-2031:	4.1%	Average annual employment growth(%) 2021-2031:	3.9%
Expected number of job openings 2021-2031:	80	Expected number of job openings 2021-2031:	110
Mainland / Southwest		North Coast & Nechako	
Employment in 2021:	16,500	Employment in 2021:	N/A
Average annual employment growth(%) 2021-2031:	3.5%	Average annual employment growth(%) 2021-2031:	N/A
Expected number of job openings 2021-2031:	10,130	Expected number of job openings 2021-2031:	N/A
Northeast		Thompson-Okanagan	
Employment in 2021:	N/A	Employment in 2021:	880
Average annual employment growth(%) 2021-2031:	N/A	Average annual employment growth(%) 2021-2031:	4.9%
Expected number of job openings 2021-2031:	N/A	Expected number of job openings 2021-2031:	700
Vancouver Island / Coast			
Employment in 2021:	2,390		
Average annual employment growth(%) 2021-2031:	3.7%		
Expected number of job openings 2021-2031:	1,600		

Table from WorkBC

Types of Employers

Computer programmers work for a variety of organizations including:

- Computer software development companies
- Information technology consulting companies
- Information technology departments throughout the private and public sector

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You may work as an independent consultant, contracting your services to more than one organization. You may also be self-employed if you start your own software company that specializes in a particular programming niche, such as games or business accounting software.

Salary

In BC, the annual **median** salary for computer programmers is \$90,244. People with more education and experience tend to earn more. Earnings also depend on your employer, location, and duties.

Programmers who work full time usually get benefits as well as a salary. These may include paid vacation, sick days, and dental coverage.

In BC's regions, you can expect to earn:

Community/Area	Wages (\$/hour)		
	Low	Median	High
British Columbia	26.44	43.27	60.10
Kootenay Region	26.44	43.27	60.10
Lower Mainland–Southwest Region	26.44	43.27	60.10
Thompson–Okanagan Region	29.81	44.31	75.00
Vancouver Island and Coast Region	28.13	41.66	57.69
Canada	23.00	38.46	57.69

Sources: WorkBC & Career Cruising

Working Hours

Most programmers work between 40 and 50 hours a week. You often work long or irregular hours. If you work full-time for large companies you may be on-call to fix problems 24 hours a day. Independent consultants frequently have long days in order to complete projects on schedule.

Source: *Career Cruising* database

2. Skills, Education and Experience

Skills

- well developed analytical skills
- patience and persistence
- interest in methodical and precise work
- detail-oriented
- ability to think logically and creatively
- good interpersonal and communication skills

Education and Experience

Most employers require:

- a bachelor's degree in computer science or in another discipline with a significant programming component

OR

- a college diploma in computer science

If you specialize in programming for engineering and scientific applications you should have specific post-secondary study or experience.

Due to the nature of the job, you need to continually upgrade your skills. Employers will often pay for training to keep your skills up to date.

Qualifications

This occupation is **not regulated** in British Columbia. There are no mandatory requirements for licensing or professional certification in order to work as a computer programmer in BC.

However, you can apply for the *Information Systems Professional (ISP)* designation through the Canadian Information Processing Society. Language-specific certification for computer programmers with specialized knowledge of a particular programming language is also available.

For more information on the ISP designation:

- **Canadian Information Processing Society**
<https://cips.ca/certification/>

3. Finding Jobs

You'll find job advertisements in local newspapers and electronic sources, as well as through professional associations' publications.

Local Newspapers

You can look at the *Vancouver Sun & The Province* at Vancouver Public Library for free. Check the job postings daily, the careers section in the *Vancouver Sun* on Wednesdays and Saturdays and, in *The Province* on Sundays.

Online Job Postings

- **ITJobs.ca**
<https://www.itjobs.ca/en/>
- **Career Door** (connects IT specialists with Employers across Canada)
<https://www.careerdoor.com/> [requires free registration and profile]
- **Indeed.com**
https://ca.indeed.com/advanced_search
Find jobs posted on a multitude of company career sites and job boards
- **BC JobConnect**
<https://www.bcjobconnect.ca> **must have permanent resident number**
newcomers can post their skills, education and work experience to BC employers looking for workers

Professional Associations' Career Resources

- **CIPS Job Board** (Canada's Association of IT Professionals)
<https://cips.ca/jobs/>
- **BC Technology Industry Association. T-Net**
<https://www.bctechnology.com/jobs/search.cfm>

Identifying the Right Position

When you browse job advertisements, you'll find different job titles.

For computer programmers, look for these related job titles:

- Application Programmer
- Computer Game Developer
- Software Developer
- Interactive Media Developer
- Multimedia Developer
- Systems Programmer
- Web Programmer

Creating a List of Potential Employers

You can use directories to produce lists of employers who employ computer programmers in Vancouver or the Lower Mainland. Contact them directly to find out if they're hiring.

- **BC Tech, Technology Guide** (special issue of Business in Vancouver)
<https://biv.com/magazine/bc-tech-2021>
also available at the Central Library, 380 EL3CBh
- **BC Tech Association, Member Directory**
<https://wearebctech.com/members/member-directory/>
- **BC Technology Industry Association. T-Net**
<https://www.bctechnology.com/tech-careers.cfm>

- **Reference Canada**

<http://www.vpl.ca/digital-library/reference-canada>

Click on "Start Search" beside Canadian Businesses, then select the "Advanced Search" button. Select both "Keyword/SIC/NAICS" under Business Type and "City" under Geography. In the top search box enter "[Computer programming]" and click LOOKUP. Select the appropriate headings. Lower down, select the Province, choose the cities, and click the "View Results" button.

Available from the VPL Digital Library | Explore our Digital Library page

NOTE: *You can access this database from a Library computer. If you are using a computer from outside the Library, you will need a Vancouver Public Library card to login to this database. After clicking on the database name, you will be asked to enter your library card number and PIN (usually last four digits of your telephone number).*

4. Applying for a Job

In Canada, employers usually expect to receive a resume (curriculum vitae) and a cover letter. These should identify the position you are applying for and summarize your relevant experience.

Use the library catalogue, <https://vpl.bibliocommons.com/> to find books on writing resumes and cover letters specific to your industry.

To learn about applying for jobs in Canada, use the following guides which are available in print at the Central Library or online:

- **Writing Resumes and Cover Letters**

<https://www.vpl.ca/siic/guide/job-search-resources/writing-resumes-and-cover-letters>

- **Networking for Employment**

<https://www.vpl.ca/siic/guide/job-search-resources/networking-for-employment>

- **Getting Canadian Work Experience**
<https://www.vpl.ca/siic/guide/job-search-resources/getting-canadian-work-experience>
- **Learn More About Working in BC and Canada**
<https://www.vpl.ca/siic/guide/job-search-resources/learn-more-about-working-in-bc-and-canada>

5. Getting Help from Industry Sources

Industry Associations

Associations for computer programmers in BC and Canada can provide you with information and assistance. Registration and fees may be required for membership.

- **BC Tech Association**
<https://wearebctech.com/>
- **Canadian Information Processing Society**
<https://cips.ca/>
- **Canadian Information Processing Society of BC**
<https://bc.cips.ca/>
- **IEEE Computer Society Vancouver Chapter**
<https://vancouver.ieee.ca/>
- **Information and Communications Technology Council ICTC**
<https://www.ictc-ctic.ca/>
- **Go Talent, ICTC Internationally Educated Professionals (IEP) Initiative**
<https://www.ictc-ctic.ca/talent/#jobseekers>

Industry Journals

Search the Vancouver Public Library catalogue for journals related to your profession. Examples at the Central Library:

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- **Network World**

Available in print at VPL, Central Library 338.47 N47 CM

Online at <https://www.networkworld.com/>

**Questions? Please ask the Information Staff in the Central Library,
Vancouver Public Library or telephone 604-331-3603.**

*Please note that the information in this guide is also available online through the Skilled
Immigrant InfoCentre website at <https://www.vpl.ca/siic>.*