

Computer Programmers

A guide for newcomers to British Columbia



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1. Working as a Computer Programmer [NOC 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 write, test and maintain code for personal computers and mainframe software applications, information systems applications, operating systems-level software and communications software

As a computer programmer, you may perform these duties:

- write, modify, integrate and test software code
- maintain existing computer programs by making modifications as required
- identify and communicate technical problems, processes and solutions
- prepare reports, manuals and other documentation on the status, operation and maintenance of software
- help collect and document user requirements

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:

- program animation software to predefined specifications for interactive CDs, DVDs, video game cartridges and internet-based applications
- program special effects software for film and video applications
- write, modify, integrate and test software code for e-commerce and other internet applications
- help collect and document user requirements

Source: Work BC Career Profiles for Computer Programmers

<http://www.workbc.ca/Job-Seekers/Career-Profiles/2174>

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.

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.

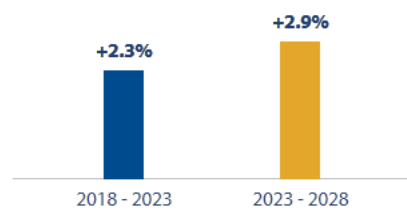
Job Outlook in BC

Employment Outlook - Computer Programmers & Interactive Media Developers NOC 2174

B.C. Labour Market Outlook (2018-2028)

Provincial outlook

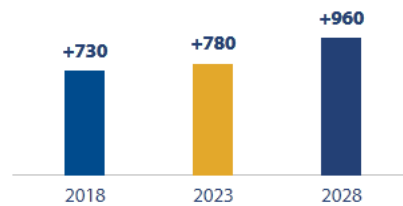
Forecasted average employment growth rate



Source: B.C. Labour Market Outlook

Job openings

10 year expected job openings: **8,050**



Source: B.C. Labour Market Outlook

Composition of job openings

Replacement of retiring workers:
45.2%
3,640 openings



New jobs due to economic growth:
54.8%
4,410 openings

Source: B.C. Labour Market Outlook

Source: Work BC Career Profiles for Computer Programmers

<http://www.workbc.ca/Job-Seekers/Career-Profiles/2174>

Regional outlook is provided for Lower Mainland/Southwest BC, Vancouver Island/Coast, Thompson-Okanagan, Cariboo and Kootenay regions:

Regional Employment for Computer Programmers & Interactive Media Developers

Cariboo		Kootenay	
Employment in 2018:	100	Employment in 2018:	130
Average annual employment growth:	1.1%	Average annual employment growth:	3.4%
Expected number of job openings:	30	Expected number of job openings:	90
Mainland / Southwest		North Coast & Nechako	
Employment in 2018:	11,720	Employment in 2018:	N/A
Average annual employment growth:	2.6%	Average annual employment growth:	N/A
Expected number of job openings:	6,290	Expected number of job openings:	N/A
Northeast		Thompson-Okanagan	
Employment in 2018:	N/A	Employment in 2018:	640
Average annual employment growth:	N/A	Average annual employment growth:	2.1%
Expected number of job openings:	N/A	Expected number of job openings:	320
Vancouver Island / Coast			
Employment in 2018:	2,160		
Average annual employment growth:	2.7%		
Expected number of job openings:	1,310		

You can learn more about working as a computer programmer in BC from Work BC Career Profiles for Computer Programmers <http://www.workbc.ca/Job-Seekers/Career-Profiles/2174>

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

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

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software company that specializes in a particular programming niche, such as games or business accounting software.

Salary

In BC, the average annual **median** salary for computer programmers is \$80,212.

In Canada, computer programmers usually earn between \$20.82/hour and \$55.29/hour.

People with more education and experience tend to earn more. Earnings also depend on their 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. Those who are self-employed must cover these costs on their own.

Job Bank Canada provides hourly wages in **BC's Regions**.

Hourly Wages - Computer Programmers & Interactive Media Developers

Community/Area	Wages (\$/hour)			Note
	Low	Median	High	
Canada	20.82	36.06	55.29	Note
British Columbia	20.00	35.19	51.10	Note
Cariboo Region	N/A	N/A	N/A	Note
Kootenay Region	20.00	35.19	51.10	Note
Lower Mainland - Southwest Region	20.00	36.06	51.28	Note
Nechako Region	N/A	N/A	N/A	Note
North Coast Region	N/A	N/A	N/A	Note
Northeast Region	N/A	N/A	N/A	Note
Thompson--Okanagan Region	N/A	N/A	N/A	Note
Vancouver Island and Coast Region	21.63	34.62	48.20	Note

Chart from Job Bank Canada, Wages Report, <http://www.jobbank.gc.ca/>

Sources:

- **Career Cruising**

<http://www.vpl.ca/digital-library/career-cruising>

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

- **Work BC Career Profiles for Computer Programmers**

<http://www.workbc.ca/Job-Seekers/Career-Profiles/2174>

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**
<http://www.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.

Job White Pages

Available in print at the Central Library or online at
JOB Freeway.com

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

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

NOTE: Access at VPL locations only

Online Job Postings

- **CIPS Job Board** (Canada's Association of IT Professionals)
<http://www.cips.ca>
- **IT Job Universe Canada**
<http://www.itjobuniverse.ca/>
- **Career Door** (connects IT specialists with Employers across Canada)
<https://www.careerdoor.com/> [requires free registration and profile]
- **T-NET**
<https://www.bctechnology.com/jobs/search.cfm>
- **Indeed.com**
http://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

- **BC Technology Industry Association. T-Net**
<https://www.bctechnology.com/tech-careers.cfm>
- **Canadian Information Processing Society**
<http://jobs.cips.ca>

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-2018>
also available at the Central Library, 380 EL3CBh
- **BC Tech Association, Member Directory**
<https://wearebctech.com/memberships/member-directory/>
- **BC Technology Industry Association. T-Net**
<https://www.bctechnology.com/tech-careers.cfm>

Branham 300, Canada's top public and private ICT companies

<https://www.branham300.com/index.php>

- **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, <http://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**

<http://pwp.vpl.ca/sic/career-advice/writing-resumes-and-cover-letters/>

- **Getting Canadian Work Experience**
<http://pwp.vpl.ca/siic/career-advice/getting-canadian-work-experience/>
- **Networking for Employment**
<http://pwp.vpl.ca/siic/career-advice/networking-for-employment/>
- **Learn More About Working in BC and Canada**
<http://pwp.vpl.ca/siic/career-advice/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 Technology Industry Association**
<http://www.bctia.org/>
- **Canadian Information Processing Society**
<http://www.cips.ca>
- **Canadian Information Processing Society of BC**
<http://bc.cips.ca/>
- **IEEE Computer Society Vancouver Chapter**
<http://sites.ieee.org/vancouver-cs/>
- **Information and Communications Technology Council ICTC**
<http://www.ictc-ctic.ca/>
- **ICTC Internationally Educated Professionals (IEP) Initiatives** (*“Go Talent”, “Coach Connect”, “Unlocking Global Talent”*)
<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:

- **Network World**
Available in print at VPL, Central Library 338.47 N47 CM

Computer Programmers
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Online at <http://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 <http://skilledimmigrants.vpl.ca/>.*

