

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 write software using a variety of computer languages.

As a computer programmer you perform the following duties:

- Write, modify, and test software code
- Develop and customize software applications
- Identify and communicate technical problems and solutions
- Prepare reports and manuals on the operation and maintenance of software
- Assist in the development of logical and physical specifications
- May lead and co-ordinate teams of computer programmers
- Interactive media developers program animation and special effects software

Source: <http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/QuickSearch.aspx?val65=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

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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



Chart from WorkBC

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The **Employment Outlook for BC** provides job openings projections within BC regions:

Region	2010 Estimated Employment	2015 Estimated Employment	Avg Annual % Change, 5 Years, 2010 to 2015
Vancouver Island	990	1,100	2.2%
Lower Mainland /Southwest	10,690	12,660	3.7%
Thompson-Okanagan	490	520	1.1%
Kootenay	90	110	3.3%
Cariboo	90	90	1.4%
North Coast & Nechako	70	70	0.9%
Northeast	40	50	1.8%

Source: Regional Employment Projections, BC Stats. Projections for development regions

<http://www.bcstats.gov.bc.ca/StatisticsBySubject/LabourIncome/EmploymentUnemployment/RegionalEmploymentProjections.aspx> [accessed October 2014]

You can learn more about working as a computer programmer in BC from

- **WorkBC, Career Profiles**

<http://workbc.ca/Careers> [search NOC 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 software company that specializes in a particular programming niche, such as games or business accounting software.

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Salary

In BC, the average annual salary for computer programmers is between \$66,000 and \$95,000.

Your income varies widely depending on level of education, experience, employer, location, and responsibilities. Systems programmers generally earn more than applications programmers.

You can also earn a higher salary if you run your own successful consulting business or have a graduate degree.

Full-time programmers usually receive benefits in addition to a salary. Common benefits include paid vacation, sick days, and dental coverage.

Job Bank Canada provides hourly wages in BC Regions:

Location	Wage (\$/hr)		
	Low	Median	High
British Columbia	20.00	33.65	48.56
Lower Mainland - Southwest Region	20.00	35.00	48.56
Thompson--Okanagan Region	20.00	33.65	48.56
Vancouver Island and Coast Region	16.00	30.00	48.72

Sources:

- *Career Cruising* database (Profile for Computer Programmer)
Available from the VPL Online Articles, Encyclopedias & More page
http://www.vpl.ca/electronic_databases/alpha/c
- Job Bank Canada, Wages Report, <http://www.jobbank.gc.ca/>
- WorkBC Career Profile

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 <http://jobfreeway.com/memberdocs/vpl-home.htm>

NOTE: *You can only access this database from the Central Library or VPL branch libraries. Access is NOT available from home or outside the Library.*

Online Job Postings

- **Indeed.com**
http://ca.indeed.com/advanced_search
Find jobs posted on a multitude of company career sites and job boards
- **IT Job Universe Canada**
<http://www.itjobuniverse.ca/>
- **Technology Career Fairs**
<http://www.careerdoor.com/jobseekers/TechnologyCareerFairs/tabid/183/Default.aspx>

Professional Associations' Career Resources

- **BC Technology Industry Association. T-Net**
<http://www.bctechnology.com/jobs/search.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

Source: <http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/QuickSearch.aspx?val65=2174>

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)
Available at the Central Library, 380 EL3CBh
- **ICT Employer Directory**
<http://employerdirectory.ictc-ctic.ca/>
- **Canadian Company Capabilities. Information & Cultural Industries**
<http://www.ic.gc.ca/eic/site/ccc-rec.nsf/eng/00043.html>

- **Reference Canada**

http://www.vpl.ca/electronic_databases/alpha/r

Go to the "Reference Canada" database, choose the "Custom Search" button, and 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 Online Articles, Encyclopedias & More page

NOTE: *You can access this VPL databases from the Library or from home.*

If you are using a computer from home or outside the library, you will need a Vancouver Public Library card to login to the databases. 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/siic/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) Integration Initiative
<http://www.ictc-ctic.ca/?p=16078>

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
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/>.