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FACULTY OF ENGINEERING & TECHNOLOGY

CSPS103: Object Oriented Programming

Lecture-33

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OBJECTIVES

In this lecture, you will learn to:

- **Streams**
- **Types of Streams**
- **Stream classes**

STREAMS

- The C++ I/O system operates through streams.
- A stream is logical device that either produces or consumes information.
- A stream is linked to a physical device by the C++ I/O system.
- All streams behave in the same manner, even if the actual physical devices they are linked to differ.
- Because all streams act the same, the I/O system presents the programmer with a consistent interface.

STREAMS (Contd.)

- C++ provides both the formatted and unformatted IO functions.

- In formatted or high-level IO, bytes are grouped and converted to types such as int, double, string or user-defined types.

- In unformatted or low-level IO, bytes are treated as raw bytes and unconverted.

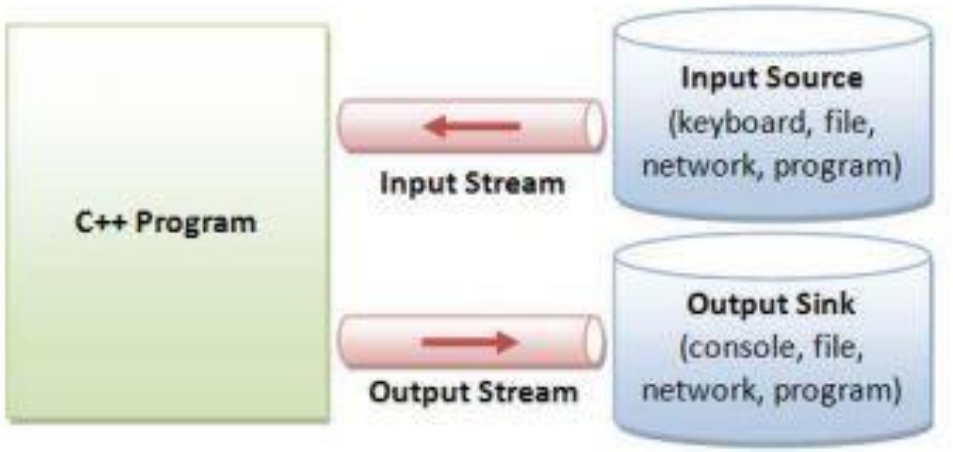
- Formatted IO operations are supported via overloading the stream insertion (<<) and stream extraction (>>) operators, which presents a consistent public IO interface.

TYPES OF STREAMS

Two types of streams:

Output stream: a stream that takes data from the program and sends (writes) it to destination.

Input stream: a stream that extracts (reads) data from the source and sends it to the program.



STREAM CLASSES

Most important stream classes are :

Class istream :- Defines input streams that can be used to carry out formatted and unformatted input operations. It contains the overloaded extraction (>>) operator functions. Declares input functions such get(), getline() and read().

Class ostream :- Defines output streams that can be used to write data. Declares output functions put and write().The ostream class contains the overloaded insertion (<<) operator function.

REFERENCES

- Kernighan, Brian W., and Dennis M. Richie. The C Programming Language. Vol. 2. Englewood Cliffs: Prentice-Hall, 1988.
- King, Kim N., and Kim King. C programming: A Modern Approach. Norton, 1996.
- Bjrane Stroustrup, “C++ Programming language”,3rd edition, Pearson education Asia(1997)
- Lafore R.”Object oriented Programming in C++”,4th Ed. Techmedia,New Delhi(2002).
- Yashwant Kenetkar,”Let us C++”,1stEd.,Oxford University Press(2006)
- B.A. Forouzan and R.F. Gilberg,CompilerScience,”A structured approach using C++” Cengage Learning, New Delhi.
- https://www.javatpoint.com/cpp-tutorial
- https://www.tutorialspoint.com/cplusplus/index.htm
- https://ambedkarcollegevasai.com/wp-content/uploads/2019/03/CPP.pdf
- https://onlinecourses.nptel.ac.in/noc20_cs07/unit?unit=3&lesson=19

Multiple Choice Question:

Q1. How many groups of output of operation are there in c++?

a) 1

b) 2

c) 3

d) 4

Multiple Choice Question:

Q2. Pick out the correct objects about the instantiation of output stream.

a) cout

b) cerr

c) clog

d) all of the mentioned

Multiple Choice Question:

Q3. What is meant by ofstream in c++?

a) Writes to a file

b) Reads from a file

c) Writes to a file & Reads from a file

d) delete a file

Multiple Choice Question:

Q4. How many types of output stream classes are there in c++?

a) 1

b) 2

c) 3

d) 4

Multiple Choice Question:

Q5. What must be specified when we construct an object of class ostream?

a) stream

b) streambuf

c) memory

d) steamostream

Summary

In this lecture, you learned that:

- A stream is logical device that either produces or consumes information.