

# Abstract class and pure virtual function in C++

Talk to a Teacher

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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# Learning Objectives



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- ▶ Abstract Class



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- ▶ Pure virtual function



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- ▶ Abstract Class
- ▶ Pure virtual function
- ▶ Through an example



# System Requirements



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- ▶ Ubuntu OS v. 11.10



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- ▶ **Ubuntu OS v. 11.10**
- ▶ **g++ Compiler v. 4.6.1**



# Abstract Class



# Abstract Class

- ▶ Abstract class is always a base class



# Abstract Class

- ▶ Abstract class is always a base class
- ▶ It contains atleast one pure virtual function



# Abstract Class

- ▶ Abstract class is always a base class
- ▶ It contains atleast one pure virtual function
- ▶ We cannot create an instance of abstract class



# Pure Virtual Function



# Pure Virtual Function

- ▶ A pure virtual function is a function with no body



# Pure Virtual Function

- ▶ A pure virtual function is a function with no body
- ▶ It is not defined in the base class



# Pure Virtual Function

- ▶ A pure virtual function is a function with no body
- ▶ It is not defined in the base class
- ▶ It is declared as:



# Pure Virtual Function

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- ▶ It is not defined in the base class
- ▶ It is declared as:
  - ▶ `virtual void virtualfunname()=0;`



# Pure Virtual Function



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- ▶ Otherwise compiler will give an error



# Pure Virtual Function

- ▶ A derived class must override the function
- ▶ Otherwise compiler will give an error
- ▶ It is upto a derived class to implement the function



# Summary

- ▶ **Abstract class**
  - ▶ eg. `class abstractinterface`
- ▶ **Pure virtual function**
  - ▶ eg. `virtual void numbers()=0;`



# Assignment

- ▶ Create an abstract class student
- ▶ Create a pure virtual function as Info
- ▶ Accept the name and roll no of the student in the function
- ▶ Create two derived class marks and sports



# Assignment

- ▶ In marks accept marks of three subjects
- ▶ In sports enter marks scored in sports
- ▶ Calculate the total marks
- ▶ Then create another derived class result
- ▶ In this display the name, roll-no, total marks of the student



# About the Spoken Tutorial Project

- ▶ Watch the video available at [http://spoken-tutorial.org/What\\_is\\_a\\_Spoken\\_Tutorial](http://spoken-tutorial.org/What_is_a_Spoken_Tutorial)
- ▶ It summarises the Spoken Tutorial project



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- ▶ If you do not have good bandwidth, you can download and watch it



# Spoken Tutorial Workshops

## The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to [contact@spoken-tutorial.org](mailto:contact@spoken-tutorial.org)



# Acknowledgements

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- ▶ It is supported by the National Mission on Education through ICT, MHRD, Government of India
- ▶ More information on this Mission is available at:

<http://spoken-tutorial.org/NMEICT-Intro>

