Creating 2D Channel Geometry and Mesh

Spoken Tutorial Project
https://spoken-tutorial.org
National Mission on Education through ICT
http://sakshat.ac.in/
Ashley Melvin & Swetha Sridhar
IIT Bombay

June 20, 2020

Learning Objectives

We will learn to:

Learning Objectives

We will learn to:

- **Create a** `2D channel geometry` **using** `blockMeshDict`

Learning Objectives

We will learn to:

- **Create a** `2D channel geometry` **using** `blockMeshDict`
- **Mesh a geometry**

Learning Objectives

We will learn to:

- **Create a** `2D channel geometry` **using** `blockMeshDict`
- **Mesh a geometry**
- **Label the** `boundary patches`

Learning Objectives

We will learn to:

- **Create a** `2D channel geometry` **using** `blockMeshDict`
- **Mesh a geometry**
- **Label the** `boundary patches`
- **View the mesh in** `ParaView`

System Specifications

System Specifications

- **Ubuntu Linux OS version 18.04**

System Specifications

- **Ubuntu Linux OS version 18.04**
- **OpenFOAM version 7**

System Specifications

- **Ubuntu Linux OS version 18.04**
- **OpenFOAM version 7**
- **ParaView version 5.6.0**

System Specifications

- **Ubuntu Linux OS version 18.04**
- **OpenFOAM version 7**
- **ParaView version 5.6.0**
- **gedit Text Editor**

Code Files

- **The files used in this tutorial are available in the `Code Files` link on this tutorial page**

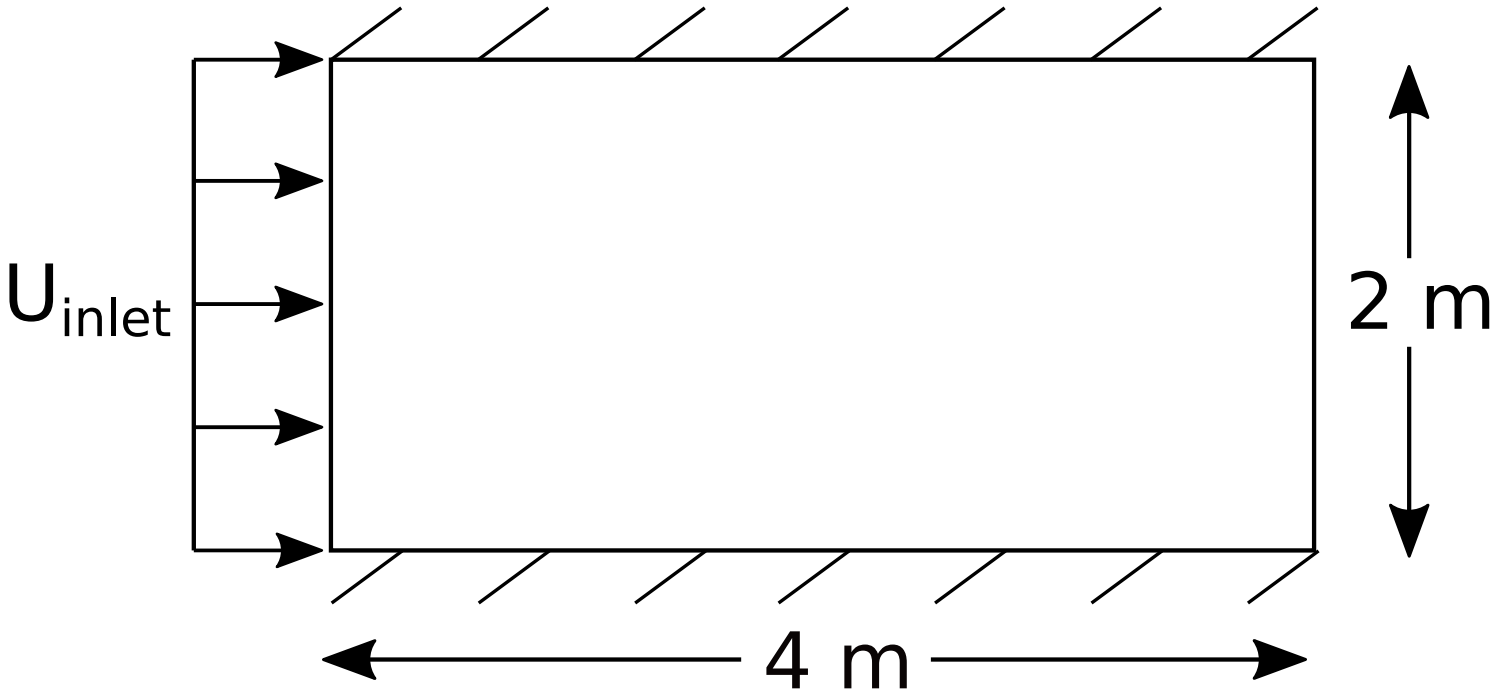
Code Files

- **The files used in this tutorial are available in the `Code Files` link on this tutorial page**
- **Please download and extract them**

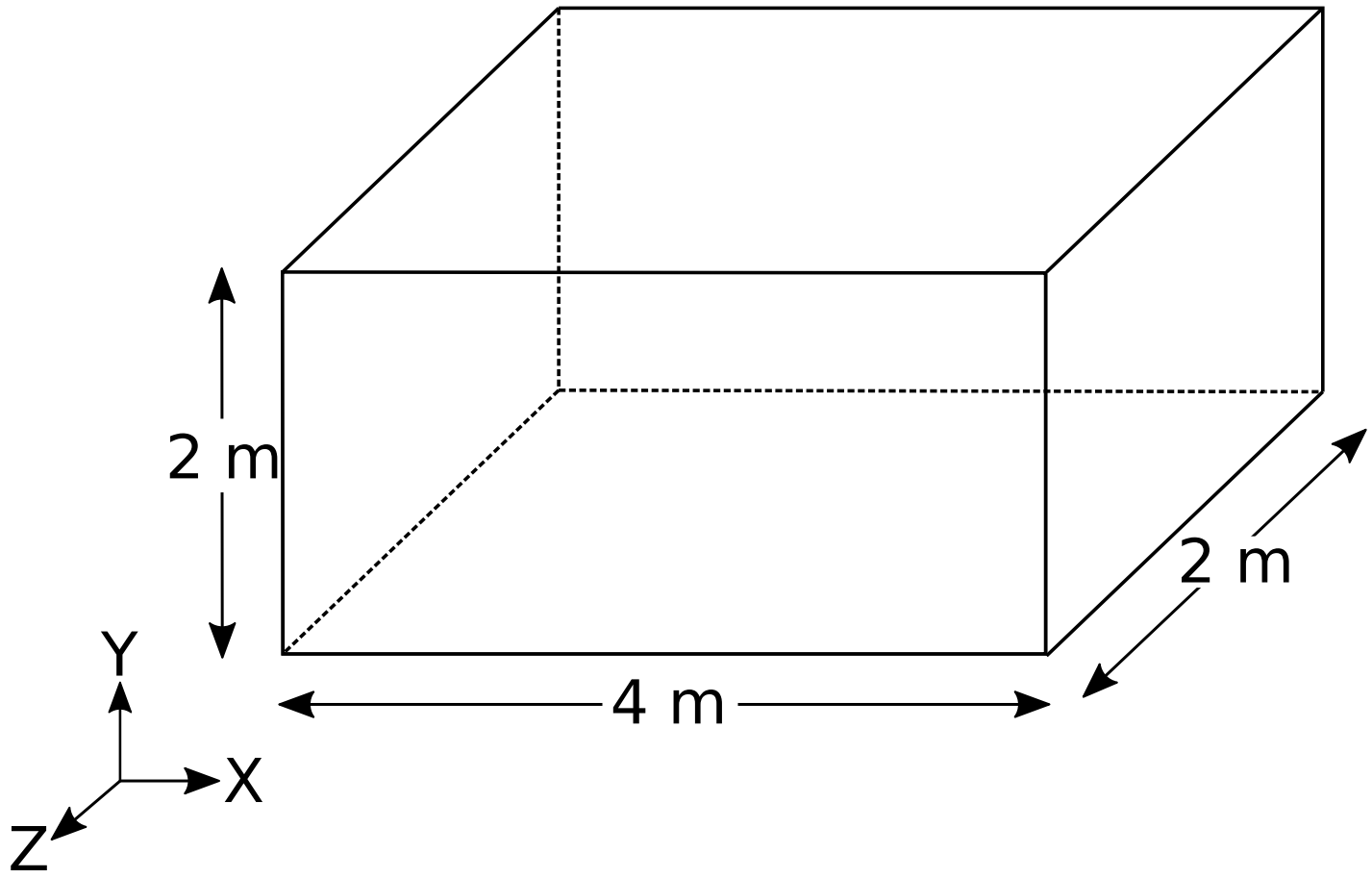
Code Files

- **The files used in this tutorial are available in the `Code Files` link on this tutorial page**
- **Please download and extract them**
- **Make a copy and then use them while practising**

2D Channel Flow

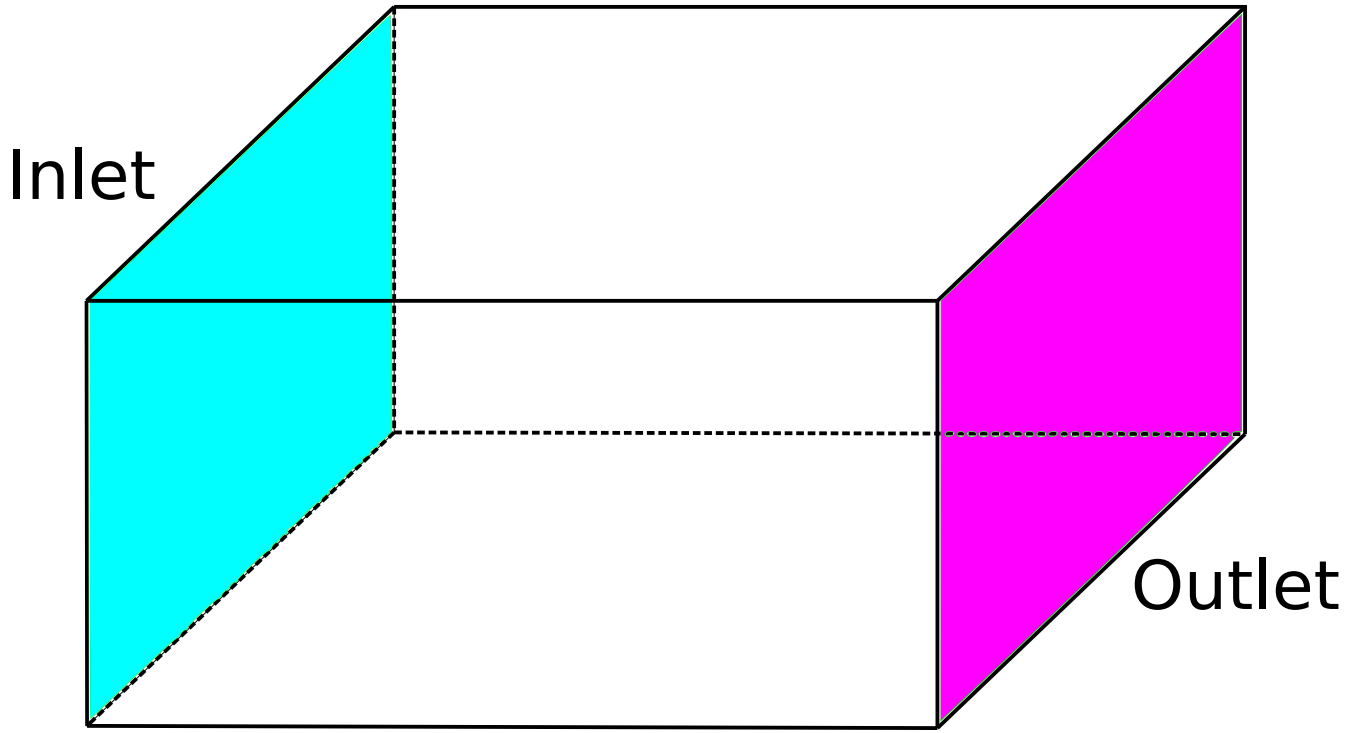


Channel Geometry

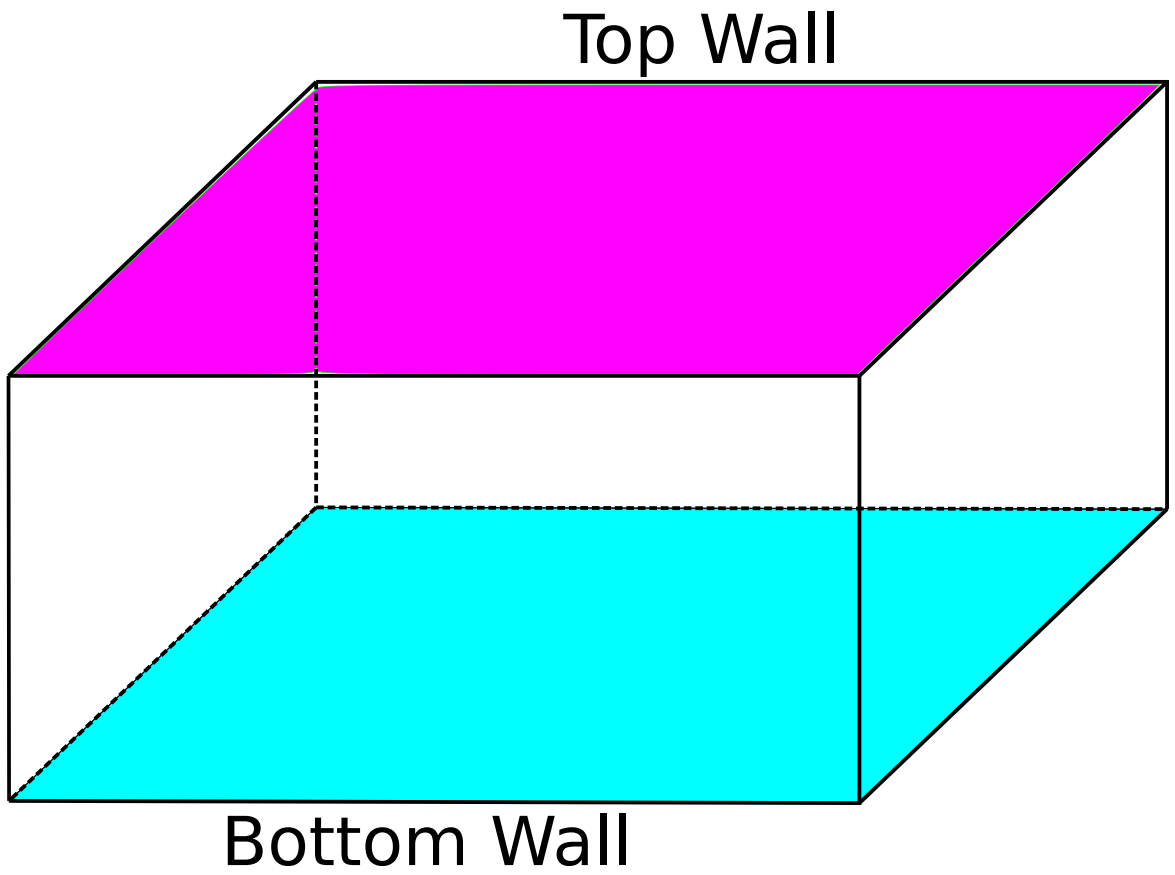


Faces

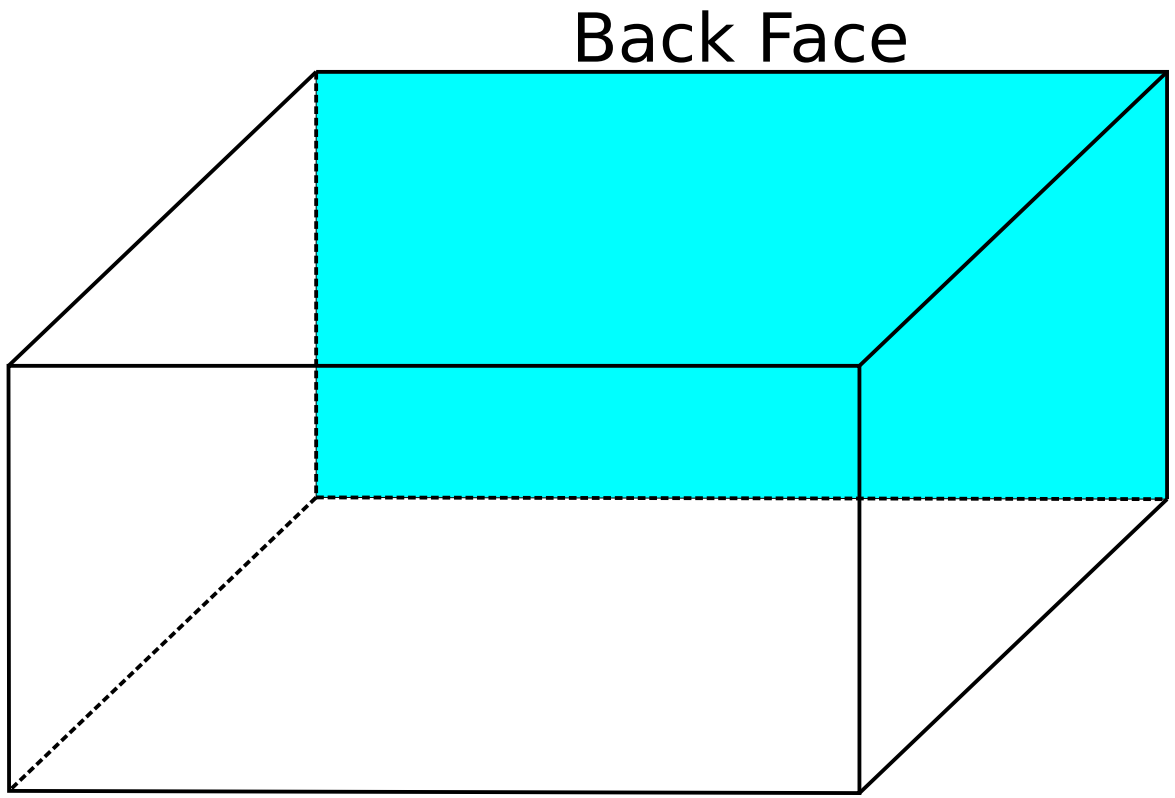
Faces



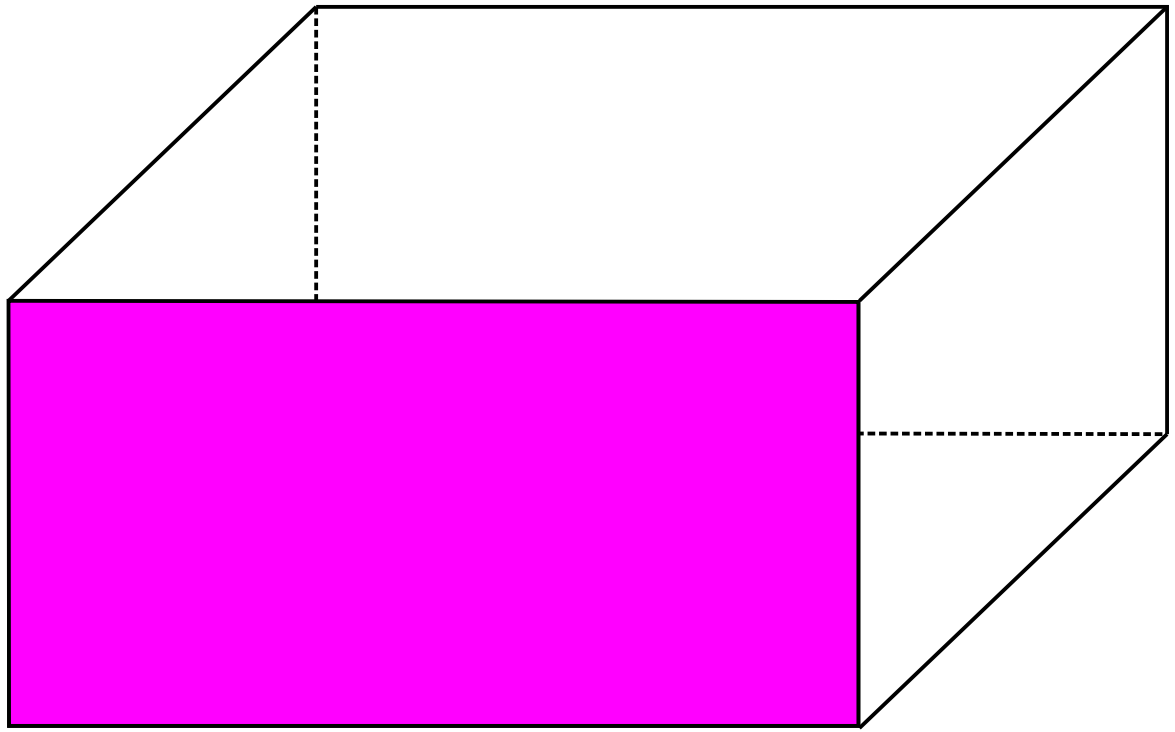
Faces



Faces

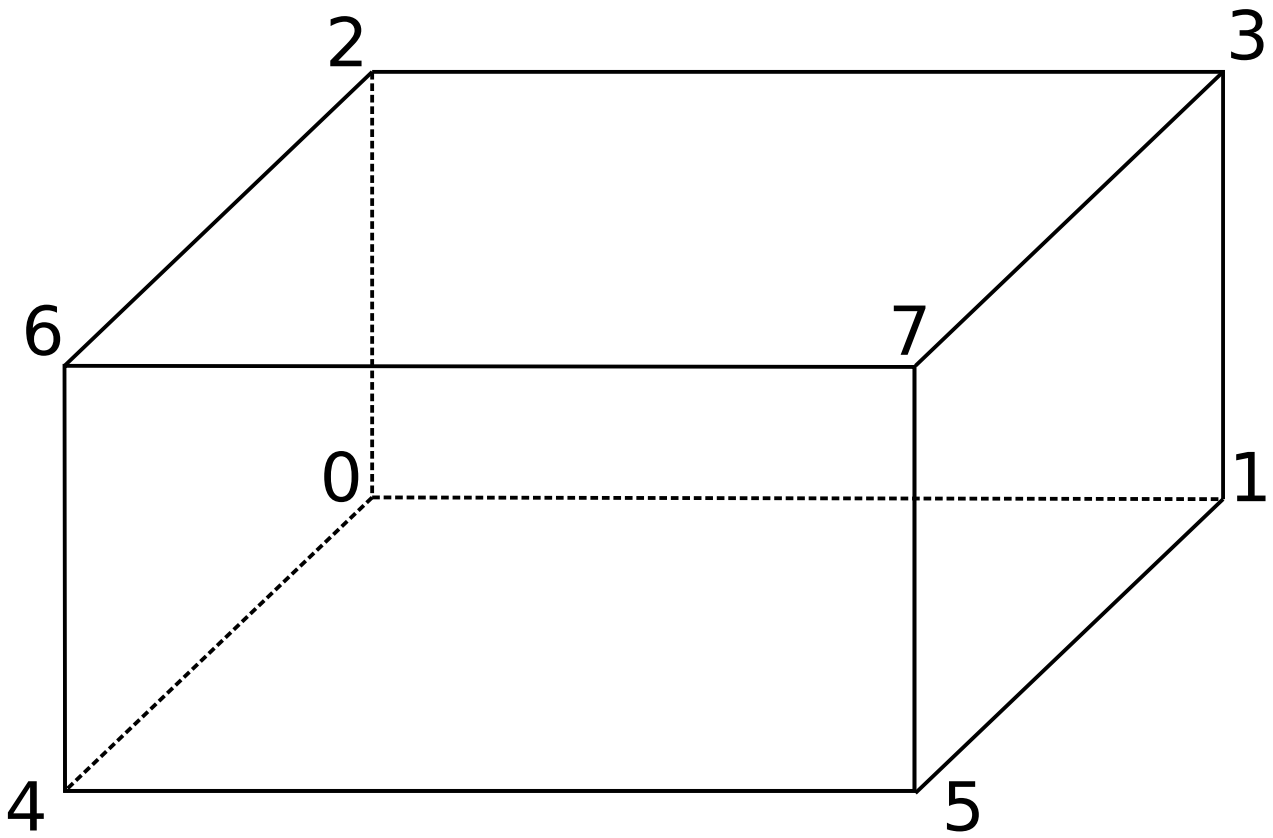


Faces

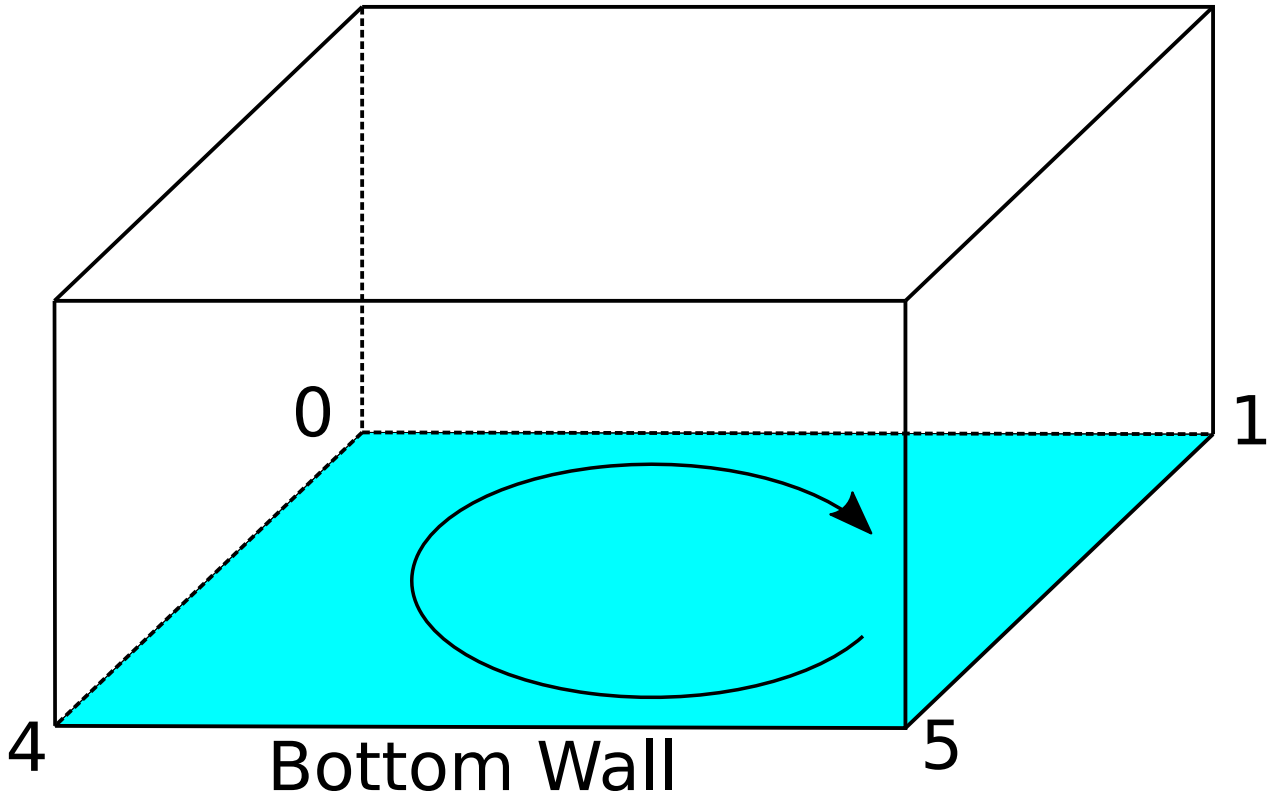


Front Face

Vertices



Bottom Wall



Summary

We have learnt to:

- **Create a** `2D channel geometry` **using** `blockMeshDict`
- **Mesh a geometry**
- **Label the** `boundary patches`
- **View the mesh in** `ParaView`

Assignment

Assignment

- **Create a geometry having dimensions** `5 m`, `4 m` **and** `3 m` **along** `x`, `y` **and** `z axis`

Assignment

- **Create a geometry having dimensions** `5 m`, `4 m` **and** `3 m` **along** `x`, `y` **and** `z axis`
- **Mesh the geometry such that it has** `50`, `40` **and** `1 cell` **along** `x`, `y` **and** `z axis`

Assignment

- **Create a geometry having dimensions** `5 m`, `4 m` **and** `3 m` **along** `x`, `y` **and** `z axis`
- **Mesh the geometry such that it has** `50`, `40` **and** `1 cell` **along** `x`, `y` **and** `z axis`
- **View the mesh in** `ParaView`

About the Spoken Tutorial Project

- **Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial**
- **It summarises the Spoken Tutorial project**
- **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**

Spoken Tutorial Forum

- Questions in THIS Spoken Tutorial?
- Visit https://forums.spoken-tutorial.org/
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer
- You will have to register to ask questions

FOSSEE Forum

- Questions not related to the Spoken Tutorial?
- Do you have general / technical questions on the Software?
- Please visit the FOSSEE Forum https://forums.fossee.in/
- Choose the Software and post your question

FOSSEE Case Study Project

- **The FOSSEE team coordinates solving feasible CFD problems of reasonable complexity using OpenFOAM**
- **We give honorarium and certificates to those who do this**
- **For more details, please visit:**
  https://cfd.fossee.in/
  https://fossee.in/

Acknowledgements

- **Spoken Tutorial Project is supported by the MHRD, Government of India**