

Team 302

Year 1 – Software Overview Training



Activity 0

- Get a Thumb Drive
- Log into a computer
- Insert Thumb Drive, go to the thumb drive and copy Activities to YourNameActivities
- Start Notepad++ from the thumb drive (go into the Notepad++ directory and select notepad++.exe)

C++ Header Files

- Look at SoftwareTestBotMap.h and Point out:
 - Comment formats (Block and Line)
 - Semi-colons
 - Case Sensitivity
 - Data Types
- Inside IChassis.h and point out:
 - Class Definition
 - Visibility (Public, Protected and Private)
 - Read Method Signatures
 - Constructors/Destructors

Activity 1

Open Activity1/TimedDrive.h

- How many block comments are in the file
- How many line comments are in the file
- How many variables are declared? What is their visibility?

Review cpp file

- Inside DragonStick.cpp and point out:
 - Includes
 - If-else if -else blocks
 - Declaring Variables and initializing
- Inside IdriveFactory.cpp
 - Switch – case statements
 - Blocks {}

Activity 2

Open Activity2/snippet.cpp

- How many variables are declared?
- If we tried, this code won't compile. Can you find 3 errors and fix them?

Activity 3

Open Activity3/LimitValue.cpp

- How many parameters are passed into the ForceIntoRange?
- What is the return value?
- After the comment in the middle of the file, create a conditional statement that will do what the comment indicates what will happen.

Calling Methods in other classes

```
#include <CANTalon.h>
```

```
CANTalon* leftFrontMotor;
```

```
leftFrontMotor = new CANTalon(... );
```

```
leftFrontMotor->Set( 1.0 );
```

```
CANTalon* rightFrontMotor;
```

```
rightFrontMotor = new CANTalon(... );
```

```
rightFrontMotor >Set( 1.0 );
```


Activity 4

- Open Activity4/OperatorInterface.cpp
- Look at OperatorInterface::GetRawAxis
 - What does it do?
 - How many Method calls are there to other Objects?
 - How many calls are there to OperatorInterface Methods?
 - How many conditional statements are there?

Robot Code Architecture

- Open Robot.cpp
 - Point out Initialization Routines (run once)
 - Point out Periodic Routines (run approximately every 20 milliseconds)
- `START_ROBOT_CLASS(Robot)` tells what class to load

Robot Code Architecture

So, a simple autonomous routine could be made to run the robot for 10 seconds. How many times would AutonomousPeriod need to run the motors before stopping them?

Activity 5

- Using Project implement as many TODO items in the following classes (as you complete classes put your name on the board to test):
 - TankDrive.cpp
 - TriggerDrive.cpp
 - ArcadeDrive.cpp (Arcade1Stick.cpp will work too)
 - TimedDrive.cpp
 - AnalogInputDrive.cpp
 - DigitalInputDrive.cpp
 - DriveToDistance.cpp