Java Basics Iteration 0

Wiki Home	Forums	Next Iteration
Wiki Home Page	Forums	Iteration 1

tWiki Home	Next Iteration
tWiki Home Page	Iteration 1

Table of Contents

Topic Overview and Enrollment Steps

Understanding the CELL Topic and Process

Read through all of Iteration 0 to get a high-level overview of the topic and how it will work. Make sure to read the FAQ section for answers to common questions.

If you still have questions you'd like answered before enrolling, visit the CELL Program in Microsoft Teams where CELL team members and Topic Advisors are available to help.

Java Basics Overview

Welcome to CELL - Java Basics!

To take this course, you do not need any prior knowledge of Java or programming. We will try to show you everything you need to learn about the basics of Java. This course will give you a good introduction and foundation to the Java programming language that you can then use for more advanced Java courses and projects. This is also a great course if you want to refresh your Java fundamentals.

Skills Practiced

- Java and Related Technology
- Java / Java 2 Standard Edition
- Java Development Kit
- JavaScript

- Java Persistence API (JPA)

Projects

- Create a basic Java program
- Explore an integrated development environment (IDE)
- Create decision-making and multiple-choice programs
- Debug syntax and logical errors
- Create a function that calculates an employee’s salary in Java

Iteration Objectives

- Review Course Load
- Confirm Knowledge Requirements
- Validate available Hardware and Software requirements
- Complete setup/prep for remaining iterations

Course Load

The course **will require about 9 weeks of study and about 30 total hours.**

Please ensure you have discussed this time commitment with your supervisor.

Requirements

Knowledge Requirements

None

Hardware Requirements

- Windows 64 bit computer with at least 8 GB memory

Selecting a computer

While CELL participants might be able to use their work computer to complete this CELL coursework, it is would be easier if a personal PC is used. This is due to the need for a higher level of admin rights on a company device for the entire duration of the CELL. It is also recommended that you use your personal computer while learning new software skills. In many cases personal computers will have higher technical specs than work machines and therefore provide an improved CELL experience. For this reason, use of a personal computer is highly recommended. Also consider the following items when deciding:

Work Computer

If you use your work computer, you will need to disconnect from the company network or VPN.
Administrator rights are needed. You can request temporary rights here.

- **Software Installation:** Download from the 'Files' section of the Java Basics CELL MS Teams Channel
- **Demos:** Use MS Teams or similar conferencing tool

Personal Computer

- **Software Installation:** Download from the internet
- **Demos:**
    - Download MS Teams and conduct on personal computer.
    - Conduct on work machine and use screenshots from personal computer.
    - Conduct on work machine and use camera to show personal computer.

Software Requirements

Download instructions will be given throughout the course, and all of the following software can be downloaded from the 'Files' section of the Java Basics CELL MS Teams channel.

- Java Development Kit
- IntelliJ - an IDE (Integrated Development Environment)

Installation Criteria for Software

For set up and installation of software on a company provided laptop, you must:

- Obtain Administrator privileges to the computer
- Access the download links from outside the firewall.

Collaboration

Although you will be performing individual work throughout CELL, interaction with other learners is key to the program and maximizing your experience. Please ensure you are utilizing the MS Teams channel so you and other learners can self-support and develop partnership and mentoring skills.

MS Teams

A place to connect with other groups, participants, Topic Advisors and CELL Program Team members. There may even be CELL graduates hanging out, able to lend their expertise! This is a great place to post questions and get help. The goal is to have other CELL participants/groups step up to collaborate and help where they can. Topic Advisors will also be here to provide support as needed. A link to the MS Teams channel is located below in the **Next Steps** section.

SharePoint

Each member of the CELL group will be added to a SharePoint site. Here you will be able to see your schedule and find your other group members.

Group Meetings

Participants may decide to meet to collaborate and discuss assignments. Topic Advisors may also provide optional meetings to answer questions based on participant desire and availability.

CELL Process FAQs

How can I set up Microsoft Teams so I get notified of comments in my CELL topic channel?

To enable notifications in Microsoft Teams, select “More options” (the 3 dots) next to your CELL topic channel name (example: “Java Basics”) on the left side of MS Teams. Select “Channel Notifications” and then “All activity.”

What is a Topic Advisor?

Topic Advisor’s (TA’s) have completed the CELL topic in the past, making them very familiar with the course material in the CELL. They volunteer their time to be available to assist participants with curriculum/technical questions throughout your CELL to enhance your learning experience and increase your chances of success.

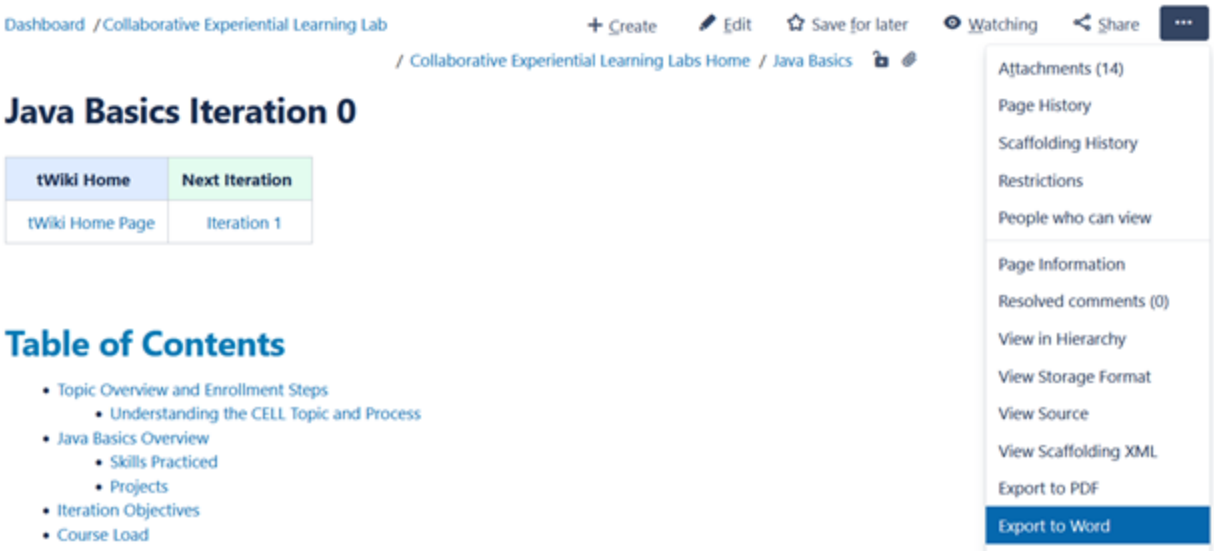
How does completion credit work after I finish my CELL?

CELL completions will be issued by the CELL program team after all iterations for a CELL are complete and a final demo is given to the Topic Advisor (TA). Please note it may take several weeks for CELL completions to appear in PLE.

What if I need to withdraw from this CELL?

If you need to withdraw from this CELL, let your Topic Advisor or a member of the CELL Program Team know.

To view this curriculum while disconnected from the company LAN or VPN, export each tWiki iteration to a PDF or Word document.



What is Java

Java is a very commonly used programming language, used to communicate with the computer to complete certain tasks. With the Java programming language, software developers can create applications on a computer. What types of applications? Think web applications, mobile applications, desktop applications, web servers, embedded systems, and more. We call these applications Java programs, because they are built with the Java programming language. Chances are you've downloaded a program that requires the JRE, or Java Runtime Environment. This is what's needed to run Java programs, and it is often what you've installed in the past to run Java applications on your computer. You may not think of them as Java applications back then, but any time you were asked to install or update Java to run the application, they were indeed Java programs.

Downloading Java on your computer

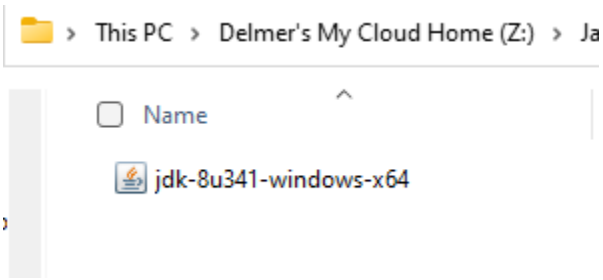
So, what's needed to build and develop a Java program? You need to install the JDK, or Java Development Kit. The Java Development Kit is a full-featured software development kit that includes everything from the JRE, as well as compilers, debuggers, and tools to create Java programs. This means we can just install the JDK, or Java Development Kit, and we get the JRE, or Java Runtime Environment, automatically. So, let's get the JDK installed.

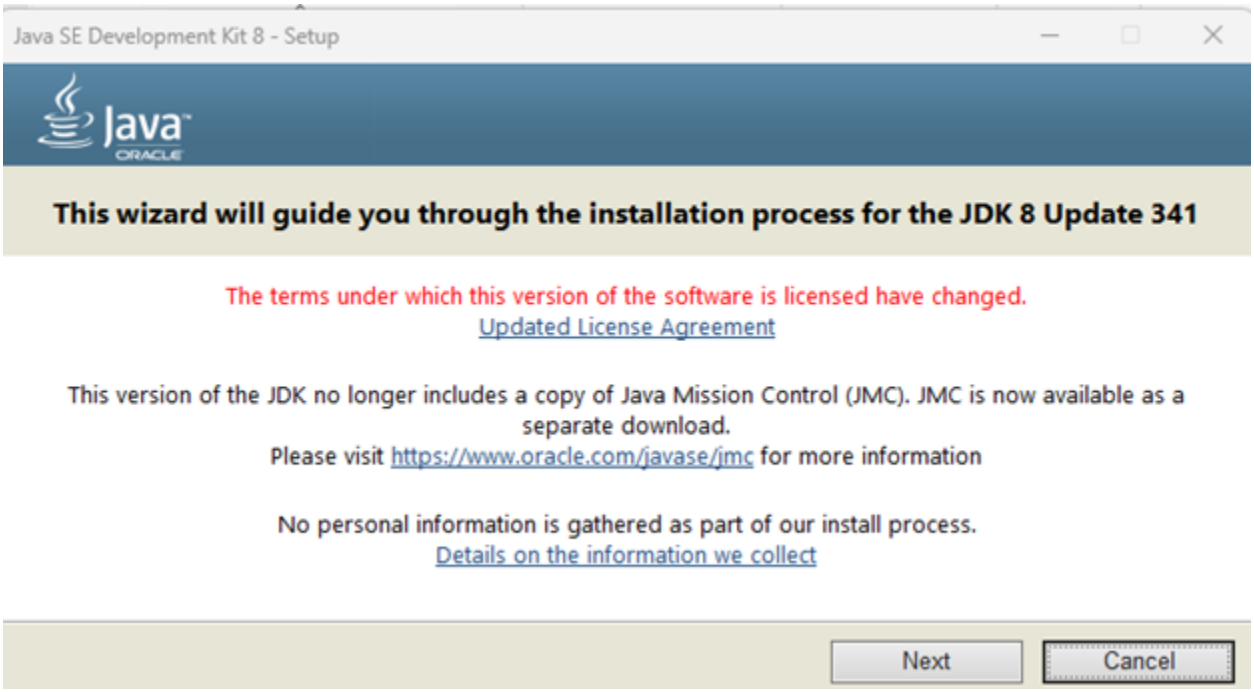
Let's install the Java Development Kit, or JDK, so that we can build Java applications on a computer. Remember, the JDK includes the JRE, or Java Runtime Environment, so we will not only be able to build applications on the computer, but we will also be able to run them. SE stands for Standard Edition, click on this first link here Java SE Downloads (oracle.com).

In this course, we'll be using 13.0.2. The difference between the versions matters more once you get deeper into the Java programming language, but for this course, we will use 13.0.2, since we are looking at the fundamentals, any version of Java 8 and above is fine. Now let's click download. Next, you'll want to download the JDK for your specific operating system. Accept the agreement.

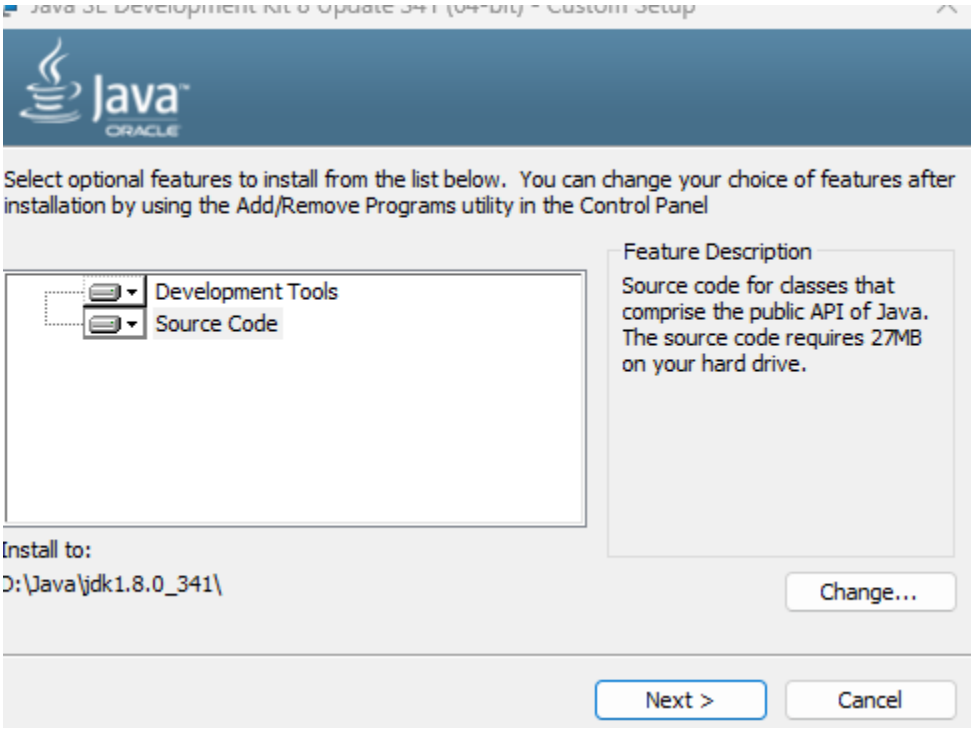
Note: For your convenience, the necessary files were added to the Java Basics CELL MS Teams chat room under 'Files.'

Let's install by double clicking on the icon of the downloaded file:

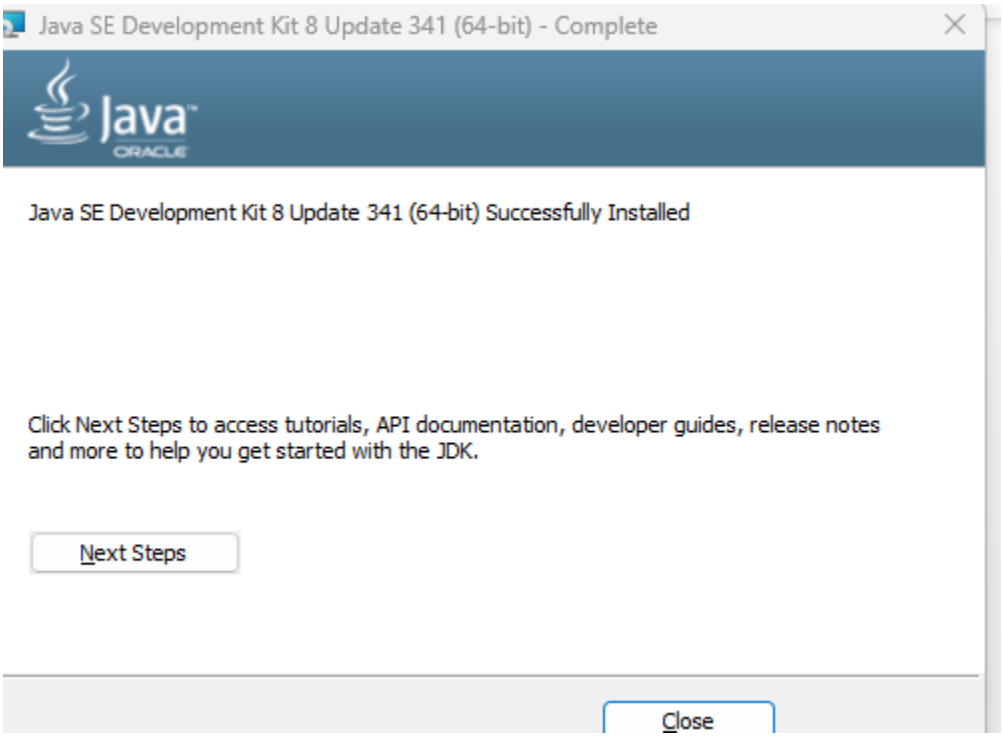

This PC
Delmer's My Cloud Home (Z:)
Ja
Name
jdk-8u341-windows-x64


Java SE Development Kit 8 - Setup
Java
ORACLE
This wizard will guide you through the installation process for the JDK 8 Update 341
The terms under which this version of the software is licensed have changed.
Updated License Agreement
This version of the JDK no longer includes a copy of Java Mission Control (JMC). JMC is now available as a separate download.
Please visit https://www.oracle.com/javase/jmc for more information
No personal information is gathered as part of our install process.
Details on the information we collect
Next
Cancel

Click Next.



Next, wait for the installer to copy the necessary files, and you should have a successfully installed message similar to below.

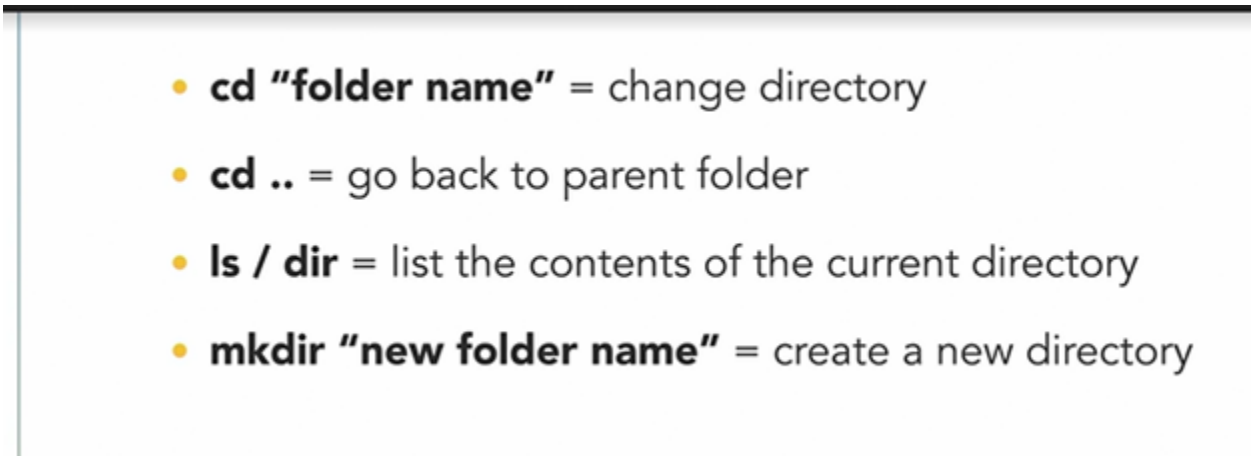


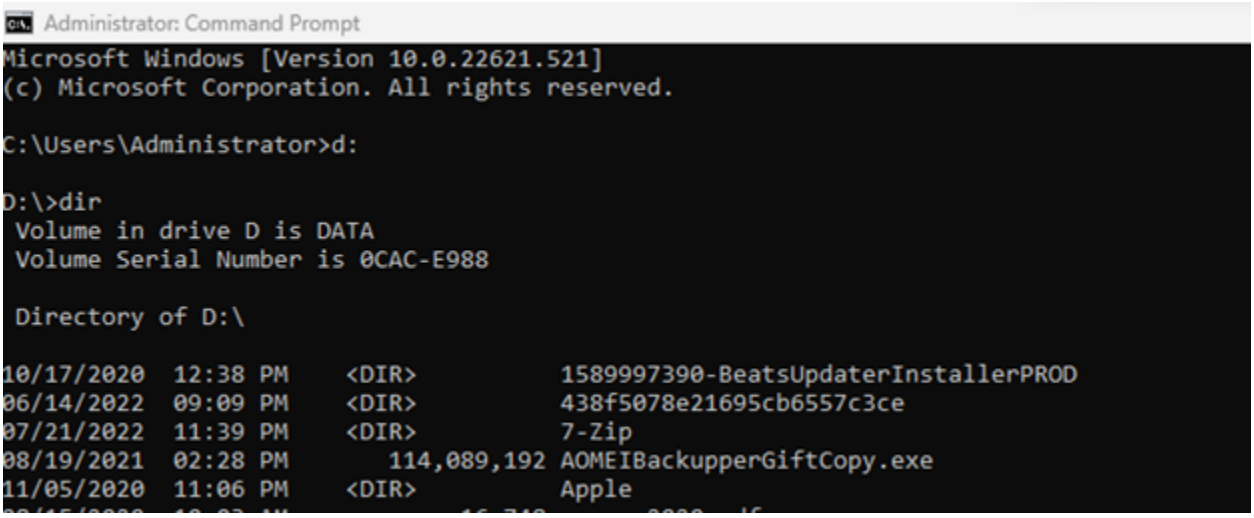
If you have errors or issues when you try to run Java, you will need to change your Windows Environmental Variables. Refer to the "Setup for Windows" file found in the Java Basics CELL MS Teams channel.

Exploring the command line

The command line is a commonly used tool that can be used to build and run Java programs. If it is used with Java programs, we need to know about what the command line actually is. The command line acts as a user interface that we can use to interact with a computer. Usually, when you want to open a folder or run an application, you use your mouse to click each item open. When we use our mouse, we are using the computer's graphical user interface. We are using the graphics, what the computer is displaying with pixels to interact with the computer. The command line mentioned earlier is just another way we can interact with the computer. The difference is, instead of clicking and dragging, we can type in commands. On Windows, Mac, we can access the built-in command line by opening the terminal program. We can Search and type in terminal, hit enter and this will open the program. If you are a Windows user, you can search for cmd in the Start menu and select command prompt from the list. The command prompt is built-in, so you shouldn't have to install anything. With the command line open, we can start typing in commands and make our computer complete tasks. If you are on a Mac, type ls and hit enter. If you are on Windows, type dir and hit enter. This command lists all the contents in our current folder. The current folder is our home folder, so if we navigate to our home folder in the GUI or graphical user interface, we should see these contents.

When talking about commands and the command line, we often use the word directory instead of folder. Now, if I want to change folders or directories and see the contents of that given directory, we use the command cd with the name of the directory. cd stands for change directory. On the machine, let's say you want a cd or change directory to your desktop folder. We can write cd desktop, hit enter, and now we will be at that location in our file system. This is similar to clicking and opening our desktop folder from the GUI. This works on both Windows and Mac. In the desktop, we can run ls, then hit enter, or if you are in Windows, you'll use dir and see the contents of this directory. It's most likely a different output than what we saw before with this command because the contents of the desktop folder are often different than the contents of the home folder. We can make a new folder on our desktop called JavaCELL Learning with the command make directory or mkdir, and then the folder name that we want to use for our new directory, in this case, JavaCELL. Hit enter and you will see a new folder on your desktop. This command works with both Windows and Mac. Now, we can go into this new folder with cd JavaCELL. To go back to the previous folder, we can use cd dot dot. Again, these commands work on both Windows and Mac. Most of the examples we've shown here are about navigating your file system, but there are lots of different commands that exist that give you different information about your computer and compute things for you. Next, we'll look at some Java specific commands that will help us build and run Java programs.





```
D:\>cd
D:\

D:\>cd java

D:\Java>
```

```
D:\Java>dir
 Volume in drive D is DATA
 Volume Serial Number is 0CAC-E988

 Directory of D:\Java

10/07/2022  03:10 PM    <DIR>          .
10/07/2022  03:10 PM    <DIR>          jdk1.8.0_341
               0 File(s)              0 bytes
               2 Dir(s)  421,391,982,592 bytes free
```

```
D:\Java>mkdir javaCELL

D:\Java>dir
 Volume in drive D is DATA
 Volume Serial Number is 0CAC-E988

 Directory of D:\Java

10/07/2022  03:30 PM    <DIR>          .
10/07/2022  03:30 PM    <DIR>          javaCELL
10/07/2022  03:10 PM    <DIR>          jdk1.8.0_341
               0 File(s)              0 bytes
               3 Dir(s)  421,391,982,592 bytes free

D:\Java>
```

You can learn more on navigating the Windows command line at this link:

Windows commands | Microsoft Learn

On MacOS:

https://www.makeuseof.com/tag/mac-terminal-commands-cheat-sheet/

In the next iteration, you will continue by writing a Java program.

Continuous Learning Tracks (CLT) Resource

Continuous Learning Tracks provide learners with a single place to access opportunities to Learn, Practice and Apply skills in specific topics, as well as resources and experts in those domains. The Java Basics CELL is part of the **Software Dev CLT**.

Software Development is at the center of many technical transformations and advancements happening at AT&T. Learners within this track are better able to understand the impacts and opportunities for 5G, Cloud Infrastructure, Data Analytics, Network Security, and other top AT&T priorities. Click on **Software Dev CLT** to view more learning options.

Next Steps

- Check your CELL group schedule in SharePoint
- Continue collaboration with your CELL group
- Be on the MS Teams Java Basics channel and set up your notifications (Right click on the Channel Channel Notifications All activity)
- If you noticed any errors on this page, please let the CELL Program Team know by sending an email to the Technology Learning Team mailbox: g31488@att.com
- Navigate to Iteration 1 and continue your CELL journey

Wiki Home	Forums	Next Iteration
Wiki Home Page	Forums	Iteration 1

tWiki Home	Next Iteration
tWiki Home Page	Iteration 1