Hewlett Packard
Enterprise

NONSTOP TECHNICAL BOOT CAMP 2023
TBC23-TB74
GITHUB AND MODERN DEV ON THE NONSTOP

Shanice Abigail, Nelson Wong

September 2023

FORWARD-LOOKING STATEMENTS
This is a rolling (up to three year) Roadmap and is subject to change without notice

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NONSTOP PARTNERSHIP– IT'S A BEAUTIFUL THING!

AGENDA

Taylor Swift's inspiration

Picking the right stack

Workflow 101

Demo on GitHub

WHO AM I?

Student Intern
SAP · Internship
Feb 2020 - Jun 2020 · 5 mos
Singapore

Worked with supervisor on a chatbot to help SAP consultants with their
daily tasks, using SAP Conversational AI...   ...see more

Software Engineering Intern
Arcstone Pte. Ltd. · Internship
Jan 2019 - Jun 2019 · 6 mos
Singapore

Working on the UI and modular software development in VB.Net.
Designed a new UI for the software's homepage....   ...see more
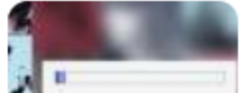
Software Engineer Internship
Optimai Pte Ltd
May 2018 - Jul 2018 · 3 mos
Singapore

Worked on API development for a web app;

- Software Engineering Intern
- Chatbot Developer

- **Taylor Swift's Eras Tour tickets were sold out a little over eight hours since they went on sale in Singapore**

- **Fans expressed frustration with the ticketing system, saying the organisers should have anticipated the high volume of customers**

- **Some also feel that tickets should be allotted separately to the SingPost outlets**

- **Experts say the drama over these tickets reflects fans' devotion to Swift**

SINGAPORE — Tickets for the Singapore stop of Taylor Swift's The Eras Tour were sold out by around 8.20pm on Friday (July 7), a little over eight hours after they went on sale, but not before leaving fans frustrated by glitches in the ticketing system.

Since Swift announced the dates, fans strategized about how to be part of the estimated 330,000 ticket holders.

HOW CAN WE SIMULATE THIS WITH NONSTOP?

1. Pick the Tools and Languages
2. Scope the Project
3. Importing into the NonStop
4. Test!

Tools and Languages 〉 Scoping the Project 〉 Import into NonStop 〉 Testing

PICKING THE NONSTOP INTERFACE

Guardian

- Low-level OS
- Flat File Structure - $disk.volume.file
- OS Specific commands, tools and utilities

OSS

- Linux-like interface
- Hierarchical Structure – folders > file
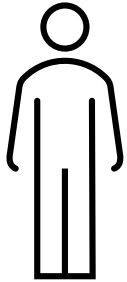- Linux-like commands, tools and utilities

Tools and Languages > Scoping the Project > Import into NonStop > Testing

THE NONSTOP DEVELOPER

Developer

Integrated Development Environment (IDE)

Version Control Code Platform

Open Source CI/CD Tools

Project Management Tools
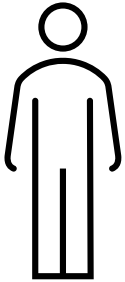
Developer Community for NonStop

| Tools and Languages | Scoping the Project | Import into NonStop | Testing |

THE NONSTOP DEVELOPER

Developer

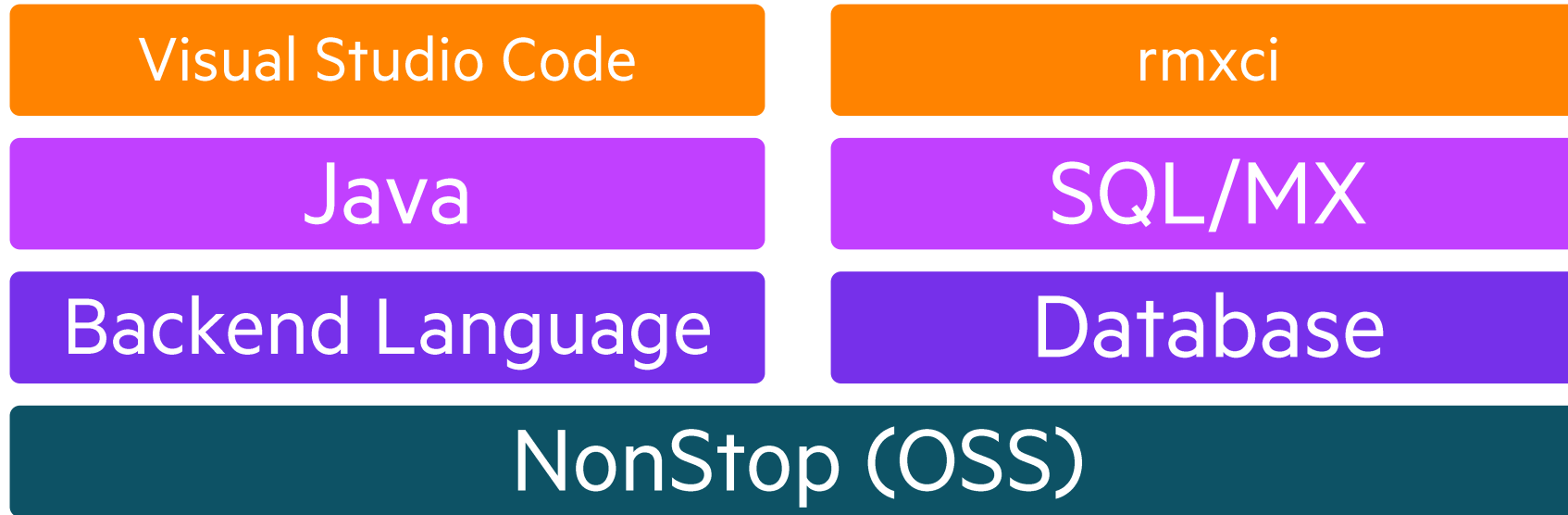## Integrated Development Environment (IDE)

Version Control Code Platform

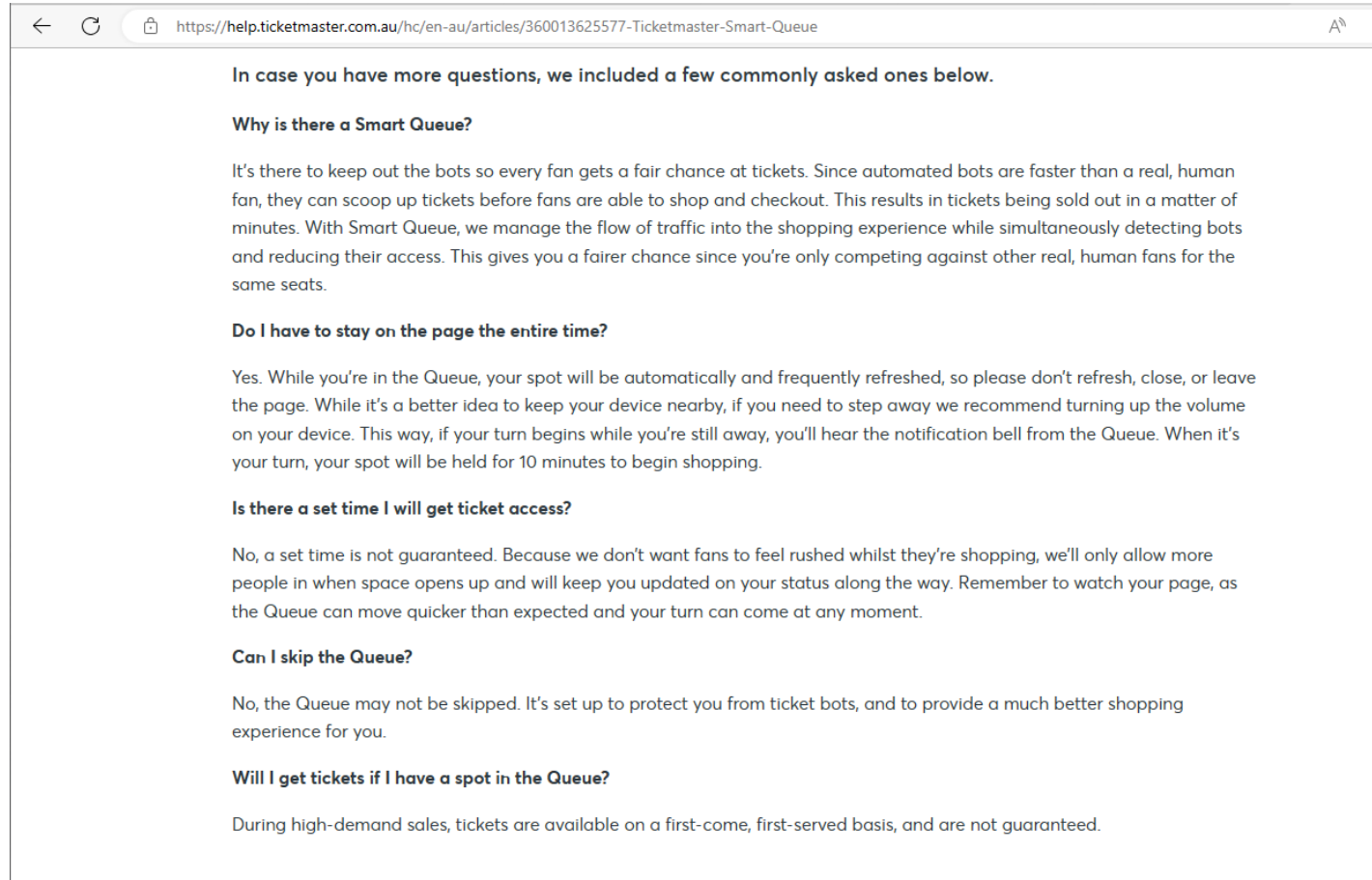Tools and Languages > Scoping the Project > Import into NonStop > Testing

ERAS TOUR SIMULATOR

Visual Studio Code

rmxci

Java

SQL/MX

Backend Language

Database

NonStop (OSS)

Tools and Languages | Scoping the Project | Import into NonStop | Testing

SCOPING THE PROJECT

In case you have more questions, we included a few commonly asked ones below.

Why is there a Smart Queue?

It's there to keep out the bots so every fan gets a fair chance at tickets. Since automated bots are faster than a real, human fan, they can scoop up tickets before fans are able to shop and checkout. This results in tickets being sold out in a matter of minutes. With Smart Queue, we manage the flow of traffic into the shopping experience while simultaneously detecting bots and reducing their access. This gives you a fairer chance since you're only competing against other real, human fans for the same seats.

Do I have to stay on the page the entire time?

Yes. While you're in the Queue, your spot will be automatically and frequently refreshed, so please don't refresh, close, or leave the page. While it's a better idea to keep your device nearby, if you need to step away we recommend turning up the volume on your device. This way, if your turn begins while you're still away, you'll hear the notification bell from the Queue. When it's your turn, your spot will be held for 10 minutes to begin shopping.

Is there a set time I will get ticket access?

No, a set time is not guaranteed. Because we don't want fans to feel rushed whilst they're shopping, we'll only allow more people in when space opens up and will keep you updated on your status along the way. Remember to watch your page, as the Queue can move quicker than expected and your turn can come at any moment.

Can I skip the Queue?

No, the Queue may not be skipped. It's set up to protect you from ticket bots, and to provide a much better shopping experience for you.

Will I get tickets if I have a spot in the Queue?

During high-demand sales, tickets are available on a first-come, first-served basis, and are not guaranteed.

Tools and Languages > Scoping the Project > Import into NonStop > Testing
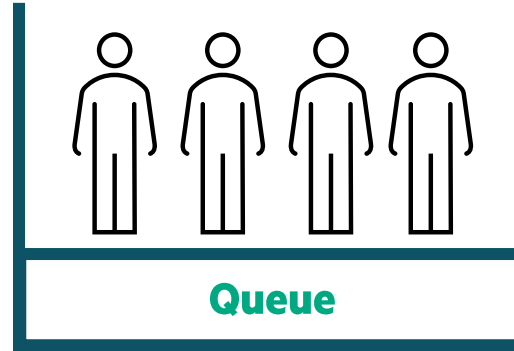
9AM TICKET SALES

## 8am – Waiting Room Opens

Waiting Room

- Users can join the queue
- While there is still room in the Waiting Room, users can join the queue
- When the Waiting Room is full, the queue is closed temporarily

9am – Start of Ticket Sales

Queue

- To prevent bots and scalpers to get tickets, each user in the Waiting Room is given a queue number in randomly
- The Queue is processed according to queue number

9am onwards
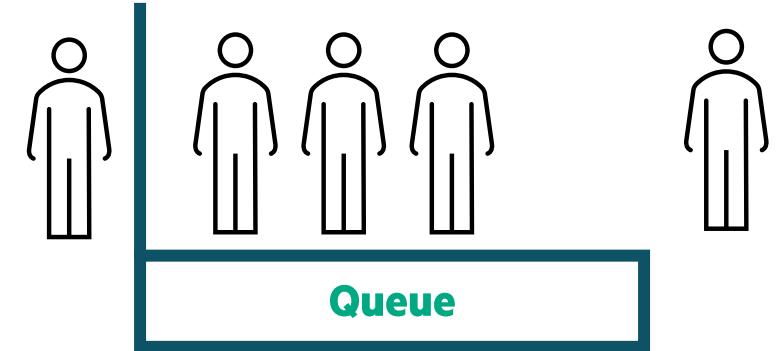
Queue

- User in line buys tickets, exits the queue, and new users who would like to join the queue can now join the queue
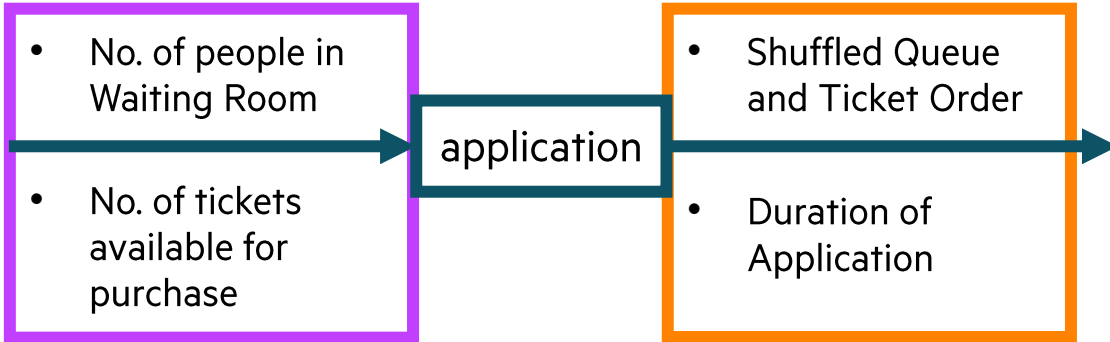
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ERAS TOUR SIMULATOR

Application

| No. of people in Waiting Room |
| No. of tickets available for purchase |

→ application →

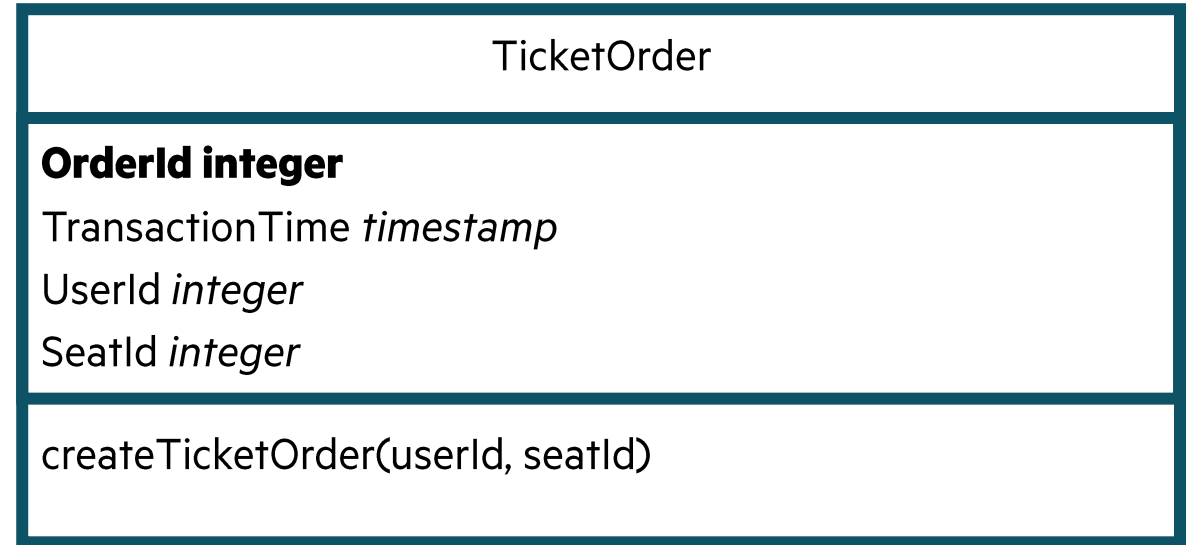| Shuffled Queue and Ticket Order |
| Duration of Application |

```
shanice                          java apiManager.java
What app would you like to simulate?
tm
How many people in Eras Tour waiting room?
10
How many tickets to Eras Tour Singapore?
5

Shuffled Queue Order:
[7, 3, 2, 4, 1, 8, 9, 5, 0, 6]
QueueID, Seat:
{7=4, 4=1, 3=3, 2=2, 1=0}
Time Taken: 5.39 seconds
                                              %
```

Class Diagram

TicketOrder
OrderId integer   TransactionTime *timestamp*   UserId *integer*   SeatId *integer*
createTicketOrder(userId, seatId)

Tools and Languages | Scoping the Project | Import into NonStop | Testing

ERAS TOUR SIMULATOR

Application Code

```java
/***
 * Ticketmaster Dupe v1
 * Functions like a Ticketmaster App at Event Sale for One Day Event
 * Holding Room - for registrants who entered before ticket sale
 * Limited Number of Tickets
 *
 * Assumptions:
 * Everyone who gets to choose a seat, will choose and get a seat
 */
public class ticketmasterDupe {
    int holdingRoomPax;
    int totalNumOfTickets;
    ArrayList<Integer> queue;
    Hashtable<Integer, Integer> idSeatDict;

    // database properties
    Properties prop = null;
    Connection conn = null;


    public ticketmasterDupe() {
        long startTime = System.currentTimeMillis();

        getNumberInHoldingRoomAndTotalTickets();
        randomizeQueue(holdingRoomPax);
        loadDbProperties();
        eventSale(totalNumOfTickets);

        // print order
        System.out.print("\nShuffled Queue Order: \n" + queue);
        System.out.println("\nQueueID, Seat: \n" + idSeatDict);
        // put into database

        printStats(startTime);
    }
}
```

Tools and Languages > Scoping the Project > Import into NonStop > Testing

HOW TO GET THE PROJECT ONTO NONSTOP

git on the nonstop

| Tools and Languages | Scoping the Project | Import into NonStop | Testing |

INTRODUCTION
What is git

- The industry standard **git** distributed **version control** system
- Originates from the Linux Kernel development
  - In 2005 by Linux Torvalds
- Provides a **history** of content changes
- Facilitates (team) **collaborative changes** to files
- Individual
  - works on **Local** (own copy) git repository
  - pull/push from/to **Remote** git repository
- https://git-scm.com/

WORKFLOW OF ADMINISTRATOR

1. Admin creates cloud repository (repo) – master branch is created
2. Admin creates branch for a new feature / developer – dev branch is created
3. Admin provides url for developer to pull from

New dev branch

branch

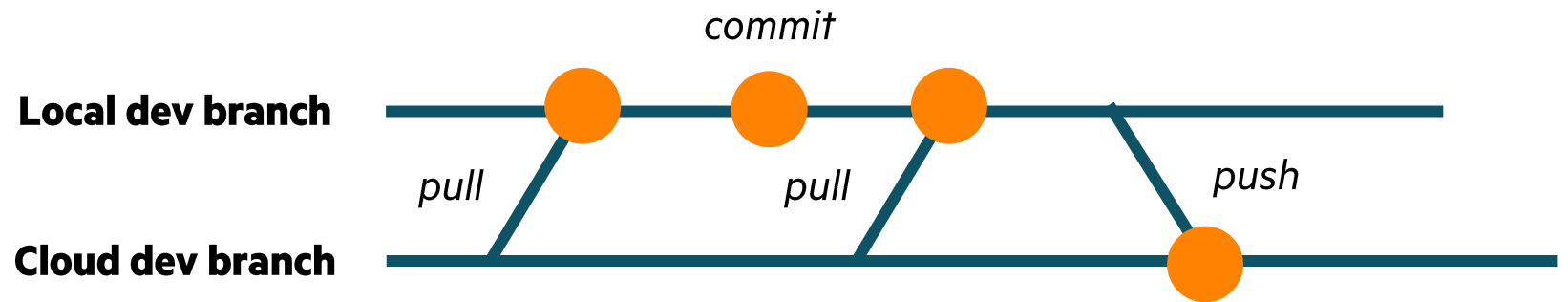**Master branch**

| Tools and Languages | Scoping the Project | Import into NonStop | Testing |

WORKFLOW OF DEVELOPER

1. Dev pulls branch of cloud repository into local repository (repo)
2. Dev creates and edits files in local repo
3. Dev commits files into local repo
4. Dev pulls branch and resolve merge conflicts
5. Dev pushes changes into cloud repo

commit

Local dev branch

Cloud dev branch

pull   *pull*   *push*
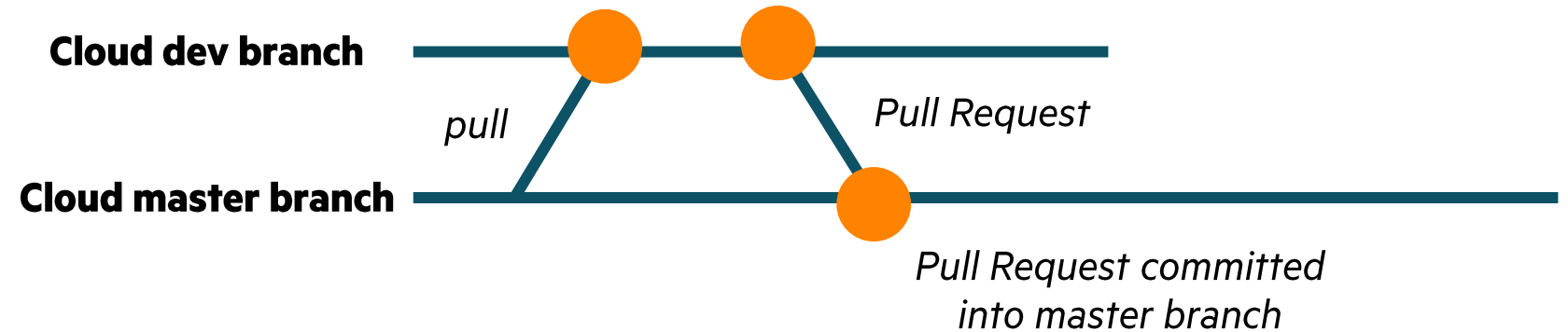
| Tools and Languages | Scoping the Project | Import into NonStop | Testing |

WORKFLOW OF A PULL REQUEST

1. Dev completes a feature and would like to integrate into master branch
2. Dev pulls from master, checks and fixes any merge conflicts
3. Dev submits a pull request from their cloud branch to cloud master branch
4. Admin reviews pull request for conflicts and build errors, before merging into master branch

Cloud dev branch

Cloud master branch

pull

Pull Request

Pull Request committed into master branch
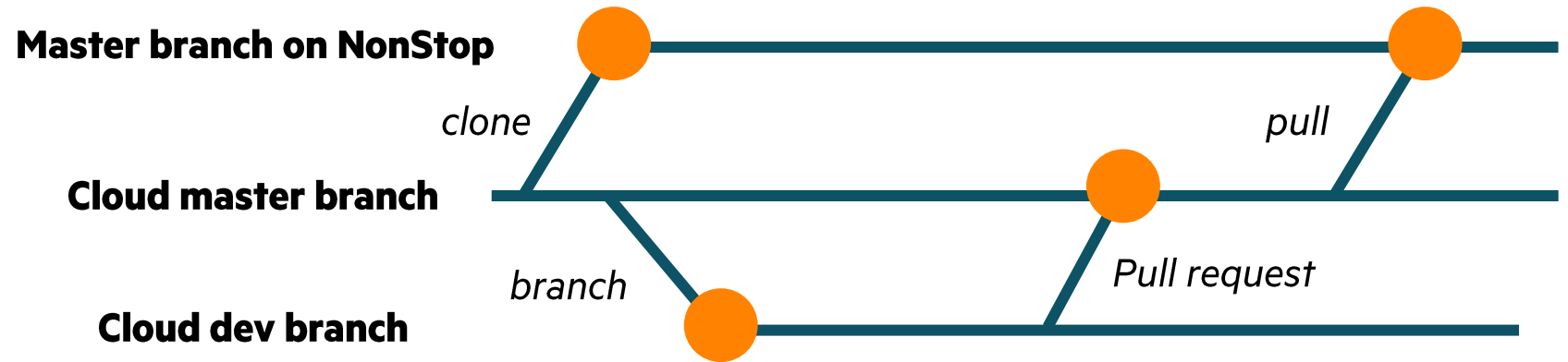
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DEVOPS WORKFLOW WITH NONSTOP

1. Admin clones a master branch on the NonStop OS
2. Admin creates a dev branch
3. Dev develops and submits pull request to cloud master
4. Admin merges pull request to cloud master
5. Admin pulls changes from cloud master to master on NonStop

Master branch on NonStop

clone

Cloud master branch

branch

pull

Pull request

Cloud dev branch

| Tools and Languages | Scoping the Project | Import into NonStop | Testing |

SIMPLE WALKTHROUGH

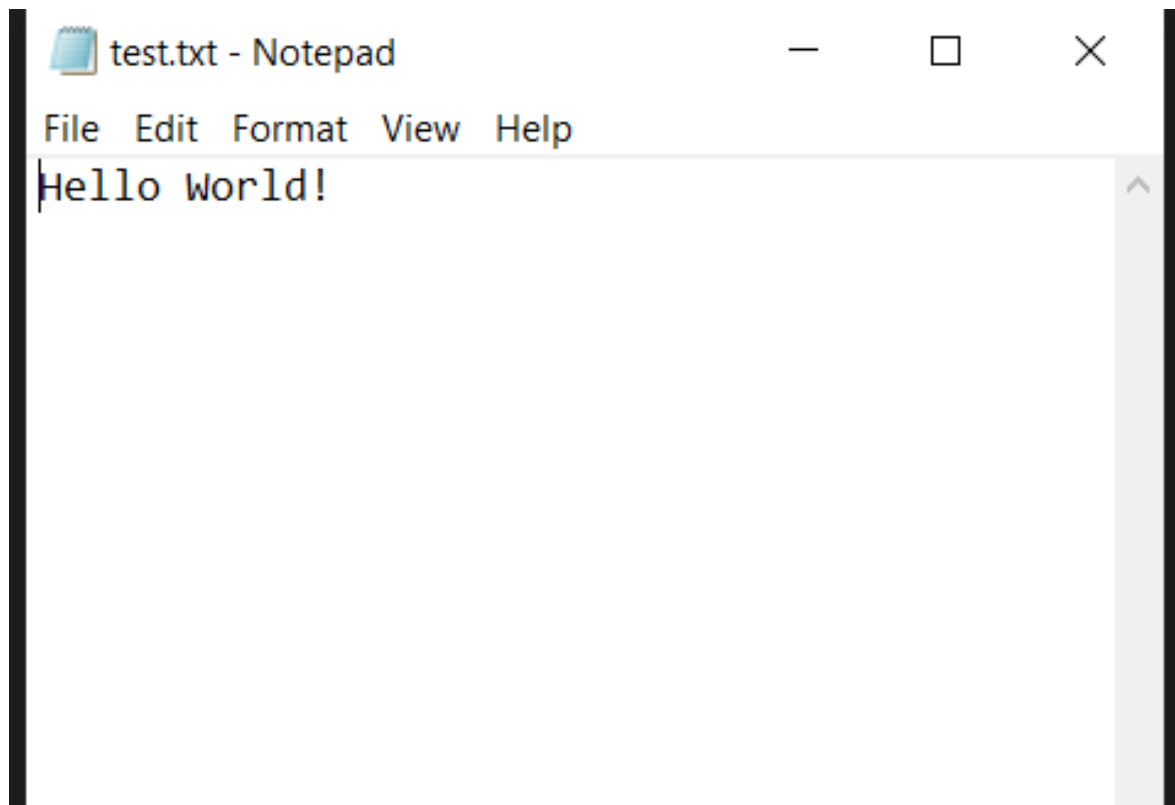Local Windows – Github – NonStop

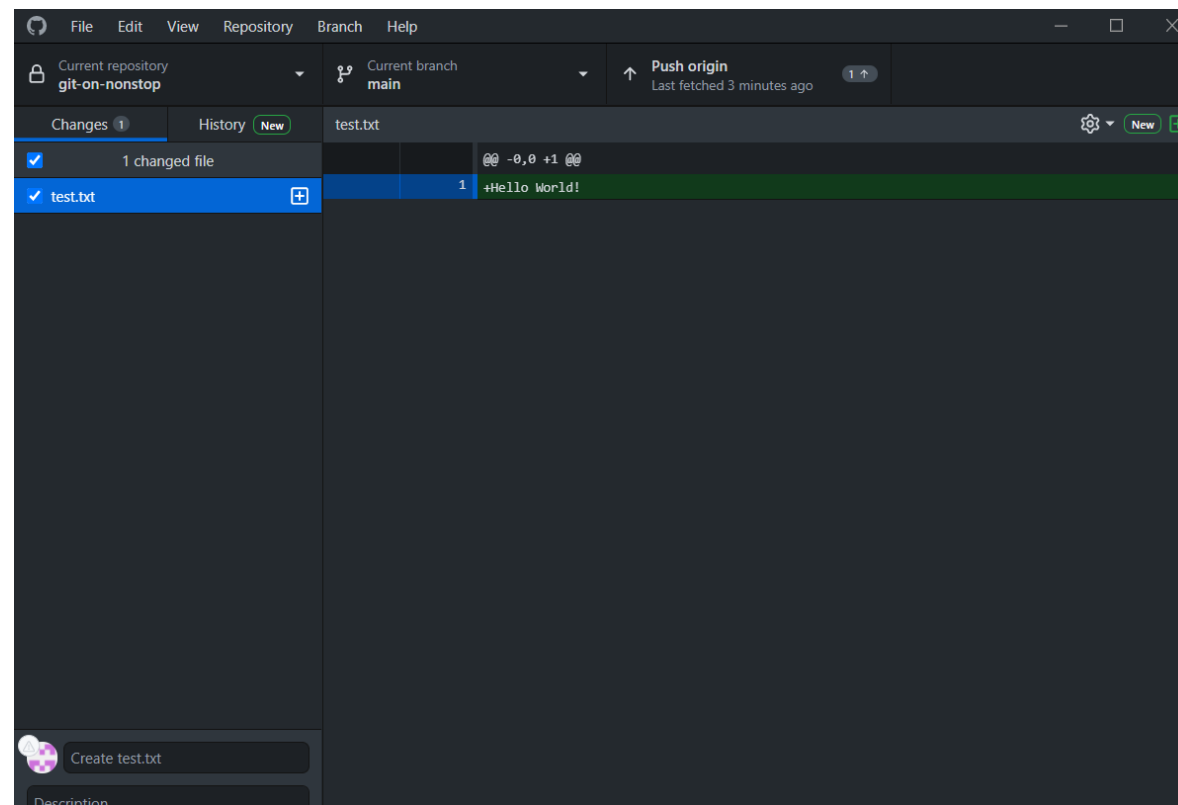Tools and Languages › Scoping the Project › Import into NonStop › Testing

UPDATE LOCAL DEVELOPMENT REPOSITORY

Create "test.txt" file in local repository
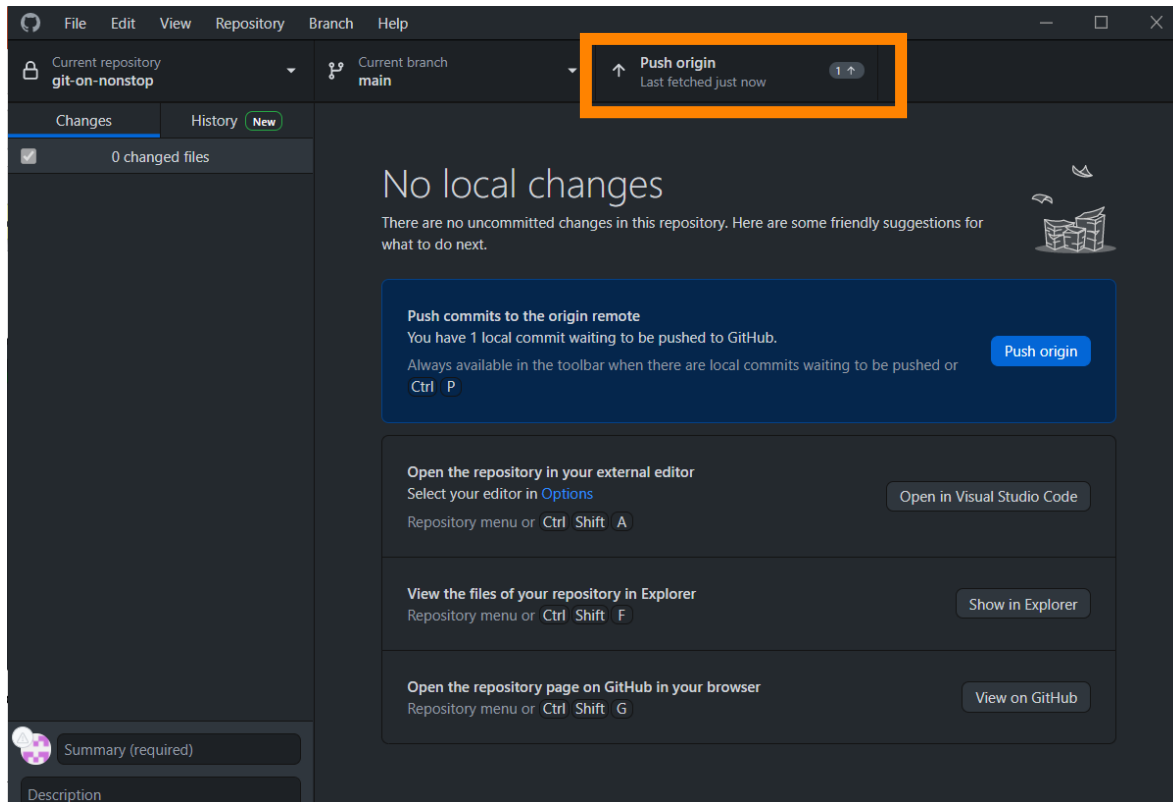
Commit the changes into the local repo
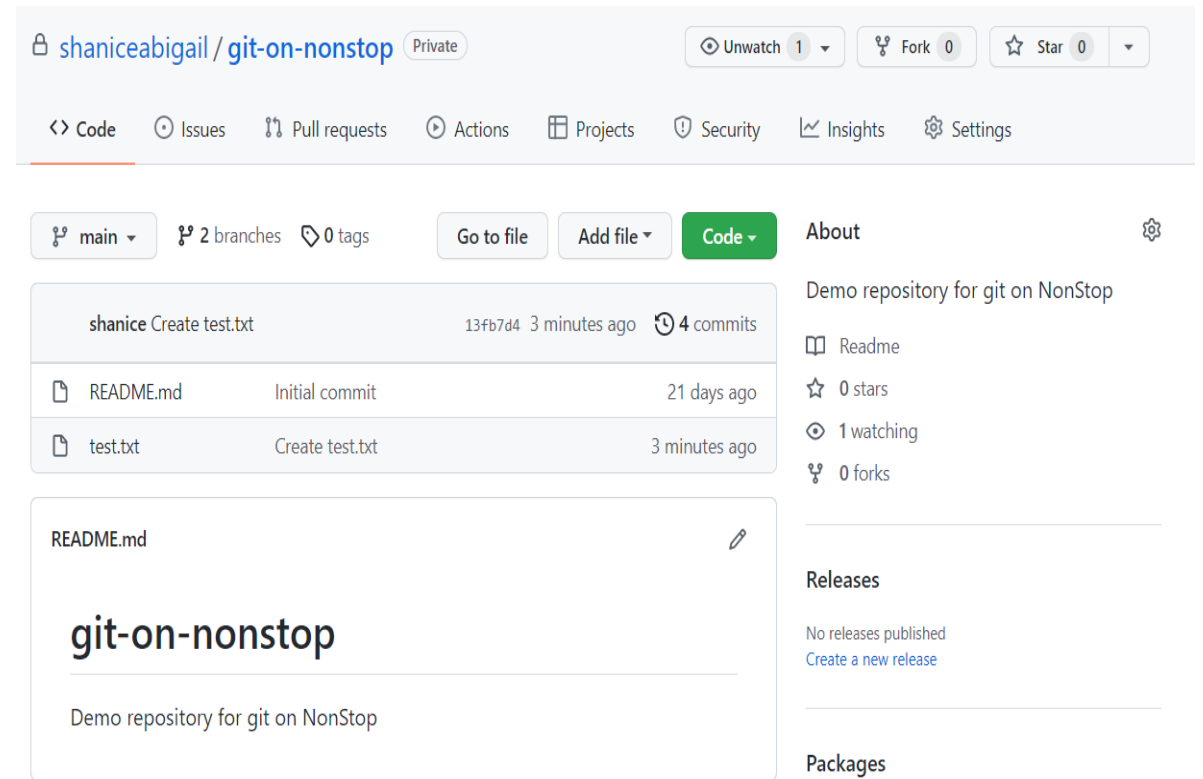
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PUSH ONTO REMOTE CLOUD REPOSITORY

Push the commit onto the remote repository

Check that the commit is reflected onto cloud repository

Tools and Languages | Scoping the Project | Import into NonStop | Testing

PULL FROM REMOTE REPO

- Get updates from the remote repository
- Files gets updated from the NonStop

```
/home/shanice/git-on-nonstop: ls
README.md
/home/shanice/git-on-nonstop: git pull
remote: Enumerating objects: 7, done.K
remote: Counting objects: 100% (7/7), done.K
remote: Compressing objects: 100% (3/3), done.K
remote: Total 5 (delta 0), reused 5 (delta 0), pack-reused 0K
Unpacking objects: 100% (5/5), 472 bytes | 39.00 KiB/s, done.
From github.com:shaniceabigail/git-on-nonstop
   ce30776..13fb7d4  main        -> origin/main
Updating ce30776..13fb7d4
Fast-forward
 test.txt | 2 32m+m31m-m
 1 file changed, 1 insertion(+), 1 deletion(-)
/home/shanice/git-on-nonstop: ls
README.md     test.txt
/home/shanice/git-on-nonstop: █
```

Tools and Languages　　Scoping the Project　　Import into NonStop　　Testing

TAYLOR SWIFT DEMO

No GUI
Java CLI

| Tools and Languages | Scoping the Project | Import into NonStop | Testing |

RUN DEMO

THE NONSTOP DEVELOPER

Developer

Integrated Development Environment (IDE)

Version Control Code Platform

GitHub GitLab Bitbucket

Open Source CI/CD Tools

Maven Gradle Jenkins

Project Management Tools

Azure DevOps

Jira Software

GitHub
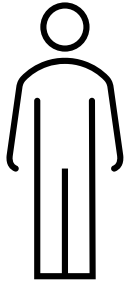
Developer Community for NonStop

Tools and Languages Scoping the Project Import into NonStop Testing

KEY TAKEAWAYS

- git is an open-source tool -> it's free, and can be installed on OSS.
  - For Guardian – NSGit by Nexbridge
- GitHub / Azure / BitLocker - track versions and renovate the software development process

After Thoughts

- git was easy to install – consistent with git on other OS. ☺
- Java, SQL/MX were all easy to configure
- Git and GitHub becomes a familiar tool in the NonStop ecosystem

THANK YOU FOR ATTENDING THIS TALK TBC23-TB74 GITHUB AND MODERN DEV ON THE NONSTOP

—

shanice.abigail@hpe.com
nelson.wong@hpe.com
Shanice Abigail - NonStop Presales (APAC)
Nelson Wong – NonStop Presales (SPAC)

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