Lab: (Sourcetree) Tracking Branches

Estimated time: 10 minutes

> Note: This lab assumes that you are using Sourcetree. If you would prefer to use a command line interface, there are separate instructions.

In this lab, you will:

1. View tracking branches.
2. Create a state with the local branch one ahead of the tracking branch.

1: View tracking branches.

1. Use bitbucket.org to create a remote repository named `projecte`. You can do this by clicking on the plus sign at the left and then `Create a new > Repository`.

2. Use Bitbucket to create the first commit.

    - Click **Create a README**.
    - Modify the text to contain only the line `# PROJECTE README #`.
    - Click **Commit**. Change the commit message to `add README.md`. Click Commit to create the commit.

    > We created the first commit so that we don't clone an empty repository. When you clone, a tracking branch is set up automatically if you have at least one commit.

3. Clone the `projecte` repository.

    - In Bitbucket, select the + sign on the left. Click `Clone this repository`.

    (Option 1) Click **Clone in Sourcetree**. Sourcetree will open with a "Clone new" window. Accept the default information and click **Clone**.

    (Option 2) Copy the repository's URL from Bitbucket, then open a new tab in Sourcetree and select **Clone**. Accept the default values.

4. View the tracking branches.

    - In Sourcetree, click on the `History` tab (Windows: `Log/History`). You should see the `add README.md` commit that you just made in Bitbucket.
    - View the branch labels on the commit. Please answer these questions: (answers at end of lab below)

QUESTION A. What does the `master` label represent?

QUESTION B. What does the `origin/master` label represent?

QUESTION C. What does the `origin/HEAD` label represent?

- On the `BRANCHES` tab, notice that only the local branch `master` is represented.
- Expand the `REMOTES > origin` tabs. You should see `HEAD` and `master`. This `master` branch is the tracking branch.

> Congratulations, you have viewed tracking branches.

2: Create a state with the local branch one ahead of the tracking branch.

QUESTION D. How do you create a state with the local branch one ahead of the tracking branch?

1. Modify your local README.md. Append the line "Fun with tracking branches." to the file. Use Sourcetree to **add and commit** this file with the commit message "add fun line to README.md". Make sure that the `Push changes immediately to origin/master` checkbox is **not** selected.

2. View your commit history. You should see that the `master` branch label is on the latest commit, but the `origin/master` and `origin/HEAD` labels have stayed on the original commit. You should also see a `1 ahead` message (or 1 with an up arrow) on the current commit.

3. Notice that the `Push` button has a `1` message. This means that you have made 1 commit locally that is not on the remote repository. **Click the Push button** to push the commit to the remote repository. You should now see the three branch labels on the latest commit. The local and remote repositories are again synchronized.

4. Verify that the second commit has been pushed to Bitbucket.

5. You will not use the `projecte` repository in future labs. You can delete it (locally and on Bitbucket).

> Congratulations, you have created a state with the local branch one ahead of the tracking branch. You have also recovered from this state by pushing the commit to the remote repository.

ANSWERS TO QUESTIONS

A) The `master` label represents the tip of the local `master` branch.

B) The `origin/master` label represents the tip of the tracking branch that tracks the `master` branch on the remote repository.

C) The `origin/HEAD` label represents the tip of the default branch on the remote repository. The default branch on the remote repository is the `master` branch.

D) If you make a commit to the local repository without pushing it to the remote repository, the local branch becomes ahead of the tracking branch. The tracking branch only knows what the remote repository knows.

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