Proceso de Desarrollo de Software

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Actividad práctica "Simular Merge con github.com"

Paso a paso práctico con GitHub.com para demostrar cómo hacer un **merge** entre ramas, incluyendo resolución de conflictos

Paso 1: Preparar el Repositorio

1. **Crea un repo en GitHub**:
   - Ve a github.com/new.
   - Nombre: `demo-merge`.
   - **No** inicialices con README.

   -
2. **Clona localmente**:

   ```
   git clone https://github.com/<tu-usuario>/demo-merge.git
   ```

```
bash-3.2$ git clone https://github.com/amartinezh/demo-merge.git
Cloning into 'demo-merge'...
warning: You appear to have cloned an empty repository.
bash-3.2$
```

3. `cd demo-merge`

Paso 2: Crear Ramas y Generar Conflictos

1. **Rama `main` (base):**

   `echo "# Demo Merge" > README.md`

   `git add README.md`

   `git commit -m "Initial commit"`

   ```
   1 file changed, 1 insertion(+)
    create mode 100644 README.md
   bash-3.2$
   ```

2. `git push origin main`

   ```
   bash-3.2$ git push origin main
   Enumerating objects: 3, done.
   Counting objects: 100% (3/3), done.
   Writing objects: 100% (3/3), 260 bytes | 260.00 KiB/s, done.
   Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
   To https://github.com/amartinezh/demo-merge.git
    * [new branch]      main -> main
   bash-3.2$
   ```

3. **Rama `feature/login` (cambios divergentes):**

   `git checkout -b feature/login`

   `echo "## Login Page" >> README.md`

```
git commit -am "Add login section"
```

```
bash-3.2$ git checkout -b feature/login
Switched to a new branch 'feature/login'
bash-3.2$ echo "## Login Page" >> README.md
bash-3.2$ git commit -am "Add login section"
[feature/login 6dfc307] Add login section
 Committer: Andres Mauricio Martinez Hincapie <andresmauriciomartinezhincapie@MacBook-Air-de-Andres.local>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 1 insertion(+)
bash-3.2$
```

4. `git push -u origin feature/login`

```
bash-3.2$ git push -u origin feature/login
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Writing objects: 100% (3/3), 310 bytes | 310.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'feature/login' on GitHub by visiting:
remote:        https://github.com/amartinezh/demo-merge/pull/new/feature/login
remote:
To https://github.com/amartinezh/demo-merge.git
 * [new branch]      feature/login -> feature/login
branch 'feature/login' set up to track 'origin/feature/login'.
bash-3.2$
```

5. **Rama** `feature/header` (cambios conflictivos):

```
git checkout main
```

```
git checkout -b feature/header
```

```
echo "## Header" >> README.md   # ¡Misma línea modificada!
```

```
git commit -am "Add header section"
```

```
bash-3.2$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
bash-3.2$ git checkout -b feature/header
Switched to a new branch 'feature/header'
bash-3.2$ echo "## Header" >> README.md  # ¡Misma línea modificada!
bash-3.2$ git commit -am "Add header section"
[feature/header ea95927] Add header section
 Committer: Andres Mauricio Martinez Hincapie <andresmauriciomartinezhin
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 1 insertion(+)
bash-3.2$
```

6. `git push -u origin feature/header`

```
bash-3.2$ git push -u origin feature/header
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Writing objects: 100% (3/3), 307 bytes | 307.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'feature/header' on GitHub by visiting:
remote:      https://github.com/amartinezh/demo-merge/pull/new/feature/header
remote:
To https://github.com/amartinezh/demo-merge.git
 * [new branch]      feature/header -> feature/header
branch 'feature/header' set up to track 'origin/feature/header'.
bash-3.2$
```

demo-merge Public   📌 Pin   👁 Unwatch 1

⑂ **feature/login** had recent pushes 5 minutes ago   **Compare & pull request**

⑂ **feature/header** had recent pushes 1 minute ago   **Compare & pull request**

⑂ main ▾   ⑂ 3 Branches   ⬦ 0 Tags   🔍 Go to file   t   Add file ▾   <> Code ▾

Andres Mauricio Martinez H... and Andres Mauricio Martinez H... Initial commit   021e3a8 · 12 minutes ago   🕐 1 Commit

📄 README.md   Initial commit   12 minutes ago

📖 **README**   ✏️

Demo Merge

Paso 3: Simular Merge Conflict en GitHub

1. **Crea un Pull Request (PR)**:
   ○ Ve a tu repo en GitHub.

○ Haz clic en **"Compare & pull request"** para `feature/header`.

> ⑂ **feature/header** had recent pushes 40 minutes ago   **Compare & pull request**

○ Base: `main` | Compare: `feature/header`.

> ⇅ base: main ▾ ← compare: feature/header ▾   ✓ **Able to merge.** These branches can be automatically merged.
>   ...

○ Crea el PR.

> **Create pull request** ▾

2. **Mergea el primer PR**:

○ Haz clic en **"Merge pull request"** → **"Create a merge commit"**.

> ✓ **No conflicts with base branch**
> Merging can be performed automatically.
>
> **Merge pull request** ▾   You can also merge this with the command line. <u>View command line instructions.</u>

> **Commit message**
>
> Merge pull request #1 from amartinezh/feature/header
>
> **Extended description**
>
> Add header section
>
> This commit will be authored by amartinezh@gmail.com.
>
> **Confirm merge**   Cancel

Pull request successfully merged and closed
You're all set — the `feature/header` branch can be safely deleted.

Delete branch

3. **Crea un segundo PR conflictivo**:

   ○ Repite el proceso para `feature/login`.

   `feature/login` had recent pushes 57 minutes ago

   Compare & pull request

   ○ GitHub mostrará: **"This branch has conflicts that must be resolved"**.

   ⇅ base: main ▾ ← compare: feature/login ▾   ✕ **Can't automatically merge.** Don't worry, you can still create the pull request.

Paso 4: Resolver Conflictos (en GitHub)

1. **Haz clic en "Resolve conflicts"**:

   Create pull request ▾

   ⚠ **This branch has conflicts that must be resolved**
   Use the web editor or the command line to resolve conflicts before continuing.
   📄 README.md

   Resolve conflicts

   Merge pull request ▾   You can also merge this with the command line. View command line instructions.

   ○ GitHub abrirá un editor con el archivo conflictivo (`README.md`):

   ```
   <<<<<<< feature/login

   ## Login Page

   =======

   ## Header
   ```

```
>>>>>>> main
```

1 conflicting file	README.md
<> README.md README.md	1 `# Demo Merge` 2 `<<<<<<< feature/login` 3 `## Login Page` 4 `=======` 5 `## Header` 6 `>>>>>>> main` 7

2. **Edita manualmente** (ejemplo):

```
## Header
```

```
## Login Page
```

README.md

```
1
2    ## Header
3    ## Login Page
4
```

3. **Marca como resuelto**:

   ○ Haz clic en **"Mark as resolved"** → **"Commit merge"**.

   | **1 conflict** | Prev ∧ | Next ∨ | ⚙ ▾ | Mark as resolved |

```
and committing changes  →  feature/login                                                    Commit merge

README.md                                                                                  ✓ Resolved

  1
  2    ## Header
  3    ## Login Page
  4
```

4. **Completa el merge**:

    ○ Haz clic en **"Merge pull request"**.

    No conflicts with base branch
    Merging can be performed automatically.

    Merge pull request ▾ You can also merge this with the command line. <u>View command line instructions.</u>

    Commit message

    Merge pull request #2 from amartinezh/feature/login

    Extended description

    Add login section

    This commit will be authored by amartinezh@gmail.com.

    Confirm merge   Cancel

    Pull request successfully merged and closed   Delete branch
    You're all set — the `feature/login` branch can be safely deleted.

📌 Paso 5: Sincronizar Localmente

```
git checkout main
```

```
git pull origin main   # Descarga los cambios mergeados
```

```
bash-3.2$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
bash-3.2$ git pull origin main  # Descarga los cambios mergeados
remote: Enumerating objects: 11, done.
remote: Counting objects: 100% (11/11), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (5/5), 2.74 KiB | 560.00 KiB/s, done.
From https://github.com/amartinezh/demo-merge
 * branch            main        -> FETCH_HEAD
   021e3a8..dc171c7  main        -> origin/main
Updating 021e3a8..dc171c7
Fast-forward

 README.md | 4 +++-
 1 file changed, 3 insertions(+), 1 deletion(-)
bash-3.2$
```

Verás el historial combinado:

```
git log --oneline --graph
```

```
bash-3.2$ git log --oneline --graph
*   dc171c7 (HEAD -> main, origin/main) Merge pull request #2 from amartinezh/feature/login
|\
| *   82f6f87 Merge branch 'main' into feature/login
| |\
| |/
|/|
* |   c42a7c0 Merge pull request #1 from amartinezh/feature/header
|\ \
| * | ea95927 (origin/feature/header, feature/header) Add header section
|/ /
| * 6dfc307 (origin/feature/login, feature/login) Add login section
|/
* 021e3a8 Initial commit
bash-3.2$
```

Ejercicio Adicional

- **Simula un hotfix:**

    1. **Crea una rama `hotfix` desde `main`.**

    2. **Modifica `README.md`.**

    3. **Haz merge vía PR y compara con el flujo de features.**