

**LAPORAN PRAKTIKUM JOBSHEET 3**  
**PERCABANGAN, PERULANGAN, DAN OPERASI GIT LANJUTAN PADA DART**



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## TUJUAN PRAKTIKUM

Praktikum ini bertujuan untuk mempelajari penggunaan branch di Git, cara melakukan commit, merge, dan push ke GitHub. Selain itu, praktikan juga membuat program Dart yang memiliki tiga fitur utama: perhitungan faktorial, pengecekan bilangan prima, dan permainan tebak angka.

## LANGKAH KERJA

### 1. Membuat File factorial.dart

```
bin > factorial.dart > factorial
1 // Fungsi untuk menghitung faktorial menggunakan perulangan `for`.
2 // afifah14
3
4 BigInt factorial(int n) {
5   if (n < 0) {
6     throw ArgumentError('Faktorial tidak didefinisikan untuk bilangan negatif');
7   }
8   BigInt result = BigInt.one;
9   for (int i = 2; i <= n; i++) {
10    result *= BigInt.from(i);
11  }
12  return result;
13 }
```

Commit:

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git add bin/factorial.dart
>> git commit -m "feat(factorial): add factorial function using for loop"
>>
[feature/factorial (root-commit) 01b27fd] feat(factorial): add factorial function using for loop
1 file changed, 13 insertions
```

### 2. Membuat Branch dan File prime.dart

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git checkout -b main
>> git checkout -b feature/prime
>>
Switched to a new branch 'main'
Switched to a new branch 'feature/prime'
```

Kode:

```
bin > prime.dart > ...
1 // afifah14
2
3 import 'dart:math';
4
5 bool isPrime(int n) {
6   if (n < 2) return false;
7   if (n == 2) return true;
8   if (n % 2 == 0) return false;
9
10  int limit = sqrt(n).floor();
11  for (int i = 3; i <= limit; i += 2) {
12    if (n % i == 0) return false;
13  }
14  return true;
15 }
```

Commit:

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git add bin/prime.dart
>> git commit -m "feat(prime): add prime checker function"
>>
[feature/prime 5fd0508] feat(prime): add prime checker function
1 file changed, 15 insertions(+)
create mode 100644 bin/prime.dart
```

### 3. Membuat Branch dan File guess\_game.dart

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git checkout main
>> git checkout -b feature/guess-game
>>
Switched to branch 'main'
Switched to a new branch 'feature/guess-game'
```

Kode:

```
bin > guess_game.dart > ...
1 // afifah14
2
3 import 'dart:io';
4 import 'dart:math';
5
6 void playGuessGame() {
7     final rnd = Random();
8     final int secret = rnd.nextInt(100) + 1;
9     int attempts = 0;
10
11     print("\n=== Game Tebak Angka ===");
12     print("Saya sudah memilih angka 1-100. Coba tebak!");
13
14     while (true) {
15         stdout.write("Masukkan tebakan (q untuk keluar): ");
16         String? input = stdin.readLineSync();
17         if (input == null) continue;
18
19         if (input.toLowerCase() == "q") {
20             print("Kamu keluar. Jawabannya: $secret");
21             break;
22         }
23
24         int guess;
25         try {
26             guess = int.parse(input);
27         } catch (_) {
28             print("Masukkan harus berupa angka!");
29             continue;
30         }
31
32         attempts++;
33         if (guess == secret) {
34             print("Benar! Kamu butuh $attempts percobaan.");
35             break;
36         } else if (guess < secret) {
37             print("Terlalu kecil!");
38         } else {
39             print("Terlalu besar!");
40         }
41     }
42 }
```

Commit:

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git add bin/guess_game.dart
>> git commit -m "feat(guess-game): add number guessing game logic"
>>
[feature/guess-game 8e39021] feat(guess-game): add number guessing game logic
1 file changed, 42 insertions(+)
create mode 100644 bin/guess_game.dart
```

#### 4. Membuat File latper3.dart di Main Branch

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git checkout main
Switched to branch 'main'
```

Kode:

```
bin > latper3.dart > main
1  import 'dart:io';
2  import 'factorial.dart';
3  import 'prime.dart';
4  import 'guess_game.dart';
5
Run | Debug
6  void main() {
7      while (true) {
8          print("\n=== Menu ===");
9          print("1. Faktorial");
10         print("2. Cek Bilangan Prima");
11         print("3. Game Tebak Angka");
12         print("4. Keluar");
13         stdout.write("Pilih menu: ");
14
15         String? pilihan = stdin.readLineSync();
16         if (pilihan == null) continue;
17
18         switch (pilihan) {
19             case "1":
20                 stdout.write("Masukkan angka: ");
21                 int n = int.parse(stdin.readLineSync()!);
22                 print("$n! = ${factorial(n)}");
23                 break;
24             case "2":
25                 stdout.write("Masukkan angka: ");
26                 int n = int.parse(stdin.readLineSync()!);
27                 print("$n ${isPrime(n) ? "adalah" : "bukan"} bilangan prima");
28                 break;
29             case "3":
30                 playGuessGame();
31                 break;
32             case "4":
33                 print("Keluar program...");
34                 return;
35             default:
36                 print("Pilihan tidak valid.");
37         }
38     }
39 }
```

Commit:

```
PS D:\Matkul\SEM 5\PEMOB\JS3> git add bin/latper3.dart
>> git commit -m "feat(menu): add main menu integrating factorial, prime, and guess game"
>>
[main aec6761] feat(menu): add main menu integrating factorial, prime, and guess game
1 file changed, 39 insertions(+)
```

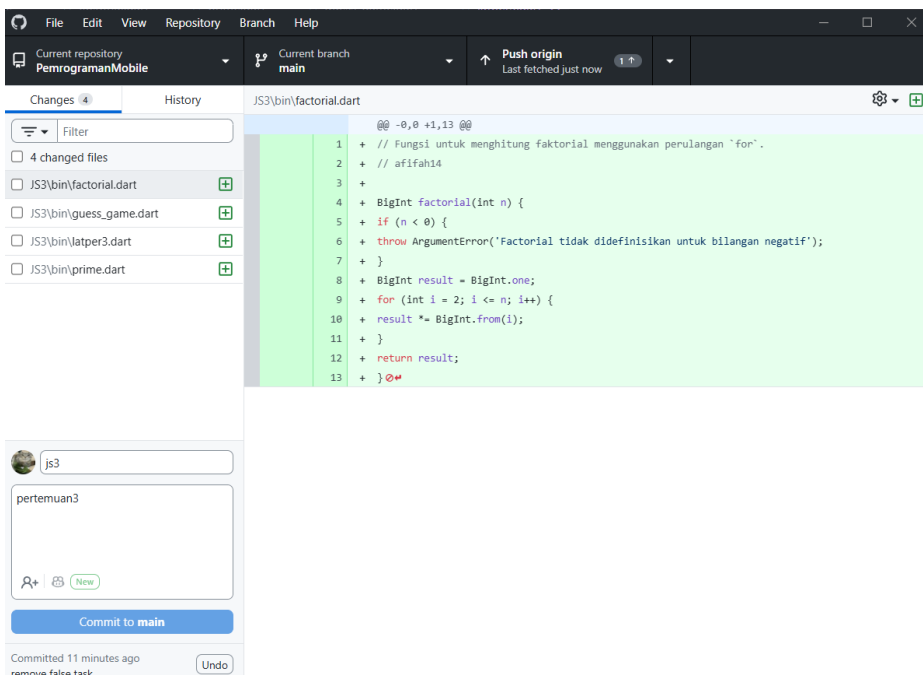
#### 5. Melakukan Merge Branch

```

PS D:\Matkul\SEM 5\PEMOB\JS3> git merge feature/factorial --no-ff -m "merge: feature/factorial into main"
create mode 100644 bin/latper3.dart
PS D:\Matkul\SEM 5\PEMOB\JS3>
PS D:\Matkul\SEM 5\PEMOB\JS3> git merge feature/factorial --no-ff -m "merge: feature/factorial into main"
PS D:\Matkul\SEM 5\PEMOB\JS3>
PS D:\Matkul\SEM 5\PEMOB\JS3> git merge feature/factorial --no-ff -m "merge: feature/factorial into main"
>> git merge feature/prime --no-ff -m "merge: feature/prime into main"
>> git merge feature/guess-game --no-ff -m "merge: feature/guess-game into main"
>>
PS D:\Matkul\SEM 5\PEMOB\JS3>
PS D:\Matkul\SEM 5\PEMOB\JS3> git merge feature/factorial --no-ff -m "merge: feature/factorial into main"
>> git merge feature/prime --no-ff -m "merge: feature/prime into main"
>> git merge feature/guess-game --no-ff -m "merge: feature/guess-game into main"
>>
Already up to date.
>> git merge feature/prime --no-ff -m "merge: feature/prime into main"
>> git merge feature/guess-game --no-ff -m "merge: feature/guess-game into main"
>>
Already up to date.
Merge made by the 'ort' strategy.
  bin/prime.dart | 15 ++++++++
>> git merge feature/guess-game --no-ff -m "merge: feature/guess-game into main"
>>
Already up to date.
Merge made by the 'ort' strategy.
  bin/prime.dart | 15 ++++++++
1 file changed, 15 insertions(+)
Already up to date.
Merge made by the 'ort' strategy.
  bin/prime.dart | 15 ++++++++
1 file changed, 15 insertions(+)
Merge made by the 'ort' strategy.
  bin/prime.dart | 15 ++++++++
1 file changed, 15 insertions(+)
create mode 100644 bin/prime.dart
1 file changed, 15 insertions(+)
create mode 100644 bin/prime.dart
Merge made by the 'ort' strategy.
create mode 100644 bin/prime.dart
Merge made by the 'ort' strategy.
Merge made by the 'ort' strategy.
  bin/guess_game.dart | 42 ++++++++++++++++++++++++++++++++++++++
1 file changed, 42 insertions(+)

```

## 6. Push ke GitHub



## 7. Menjalankan Program

[GITHUB](#)

```
PS D:\Matkul\SEM 5\PEMOB\JS3> dart run bin/latper3.dart  
>>
```

```
=== Menu ===  
1. Faktorial  
2. Cek Bilangan Prima  
3. Game Tebak Angka  
4. Keluar  
Pilih menu: 1  
Masukkan angka: 2  
2! = 2
```

```
=== Menu ===  
1. Faktorial  
2. Cek Bilangan Prima  
3. Game Tebak Angka  
4. Keluar  
Pilih menu: 2  
Masukkan angka: 3  
3 adalah bilangan prima
```

```
=== Menu ===  
1. Faktorial  
2. Cek Bilangan Prima  
3. Game Tebak Angka  
4. Keluar  
Pilih menu: 3
```

```
=== Game Tebak Angka ===  
Saya sudah memilih angka 1-100. Coba tebak!  
Masukkan tebakan (q untuk keluar): 14  
Terlalu kecil!  
Masukkan tebakan (q untuk keluar): 69  
Terlalu kecil!  
Masukkan tebakan (q untuk keluar): 87  
Terlalu besar!  
Masukkan tebakan (q untuk keluar): 86  
Terlalu besar!  
Masukkan tebakan (q untuk keluar): 80  
Terlalu besar!  
Masukkan tebakan (q untuk keluar): 70  
Terlalu kecil!  
Masukkan tebakan (q untuk keluar): 75  
Terlalu besar!  
Masukkan tebakan (q untuk keluar): 74  
Terlalu besar!  
Masukkan tebakan (q untuk keluar): 71  
Benar! Kamu butuh 9 percobaan.
```

```
=== Menu ===  
1. Faktorial  
2. Cek Bilangan Prima  
3. Game Tebak Angka  
4. Keluar  
Pilih menu: 4  
Keluar program...  
PS D:\Matkul\SEM 5\PEMOB\JS3> |
```