

LAPORAN PRAKTIKUM KONSTRUKSI PERANGKAT LUNAK

Aplikasi Bank Transfer dengan Runtime Configuration (Node.js)



Disusun Oleh :

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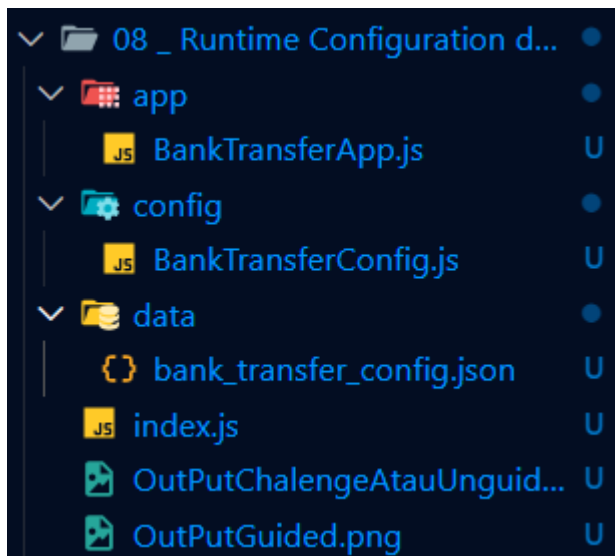
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**PROGRAM STUDI S1 REKAYASA PERANGKAT LUNAK
DIREKTORAT TELKOM KAMPUS PURWOKERTO
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1. Urutan struktur



Folder APP File BankTranferApp.js

```
const readline = require('readline');
const BankTransferConfig = require('../config/BankTransferConfig');

class BankTransferApp {
  constructor() {
    this.config = new BankTransferConfig().config;
    this.rl = readline.createInterface({
      input: process.stdin,
      output: process.stdout
    });
  }

  askQuestion(query) {
    return new Promise(resolve => this.rl.question(query, resolve));
  }

  async run() {
    const lang = this.config.lang;

    const promptAmount = lang === "en" ?
      "Please insert the amount of money to transfer: " :
      "Masukkan jumlah uang yang akan di-transfer: ";

    const amountStr = await this.askQuestion(promptAmount);
    const amount = parseFloat(amountStr);

    const fee = amount <= this.config.transfer.threshold
      ? this.config.transfer.low_fee
      : this.config.transfer.high_fee;
```

```

    const total = amount + fee;

    if (lang === "en") {
        console.log(`Transfer fee = ${fee}`);
        console.log(`Total amount = ${total}`);
    } else {
        console.log(`Biaya transfer = ${fee}`);
        console.log(`Total biaya = ${total}`);
    }

    console.log(lang === "en" ? "Select transfer method:" : "Pilih metode transfer:");
    this.config.methods.forEach((method, idx) => {
        console.log(`${idx + 1}. ${method}`);
    });

    await this.askQuestion(lang === "en" ? "Choose a method (press Enter after): " : "Pilih metode (tekan Enter setelah): ");

    const confirmationPrompt = lang === "en" ?
        `Please type "${this.config.confirmation.en}" to confirm the transaction: ` :
        `Ketik "${this.config.confirmation.id}" untuk mengkonfirmasi transaksi: `;

    const confirmationInput = await this.askQuestion(confirmationPrompt);

    if (
        (lang === "en" && confirmationInput.trim().toLowerCase() === this.config.confirmation.en) ||
        (lang === "id" && confirmationInput.trim().toLowerCase() === this.config.confirmation.id)
    ) {
        console.log(lang === "en" ? "The transfer is completed" : "Proses transfer berhasil");
    } else {
        console.log(lang === "en" ? "Transfer is cancelled" : "Transfer dibatalkan");
    }

    this.rl.close();
}
}

module.exports = BankTransferApp;

```

Folder Config File BankTransferConfig.js

```
const fs = require('fs');
const path = require('path');

class BankTransferConfig {
  constructor() {
    this.configPath = path.join(__dirname,
    '../data/bank_transfer_config.json');
    this.defaultConfig = {
      lang: "en",
      transfer: {
        threshold: 25000000,
        low_fee: 6500,
        high_fee: 15000
      },
      "methods": ["RTO (real-time)", "SKN", "RTGS", "BI FAST", "Flip",
"Dana"],
      confirmation: {
        en: "yes",
        id: "ya"
      }
    };
    this.config = this.loadConfig();
  }

  loadConfig() {
    if (fs.existsSync(this.configPath)) {
      const data = fs.readFileSync(this.configPath, 'utf8');
      return JSON.parse(data);
    } else {
      this.saveConfig(this.defaultConfig);
      return this.defaultConfig;
    }
  }

  saveConfig(config) {
    fs.writeFileSync(this.configPath, JSON.stringify(config, null,
2));
  }
}

module.exports = BankTransferConfig;
```

Folder data File bank_transfer_config.json

```
{
  "lang": "en",
  "transfer": {
    "threshold": 25000000,
    "low_fee": 6500,
```

```
    "high_fee": 15000
  },
  "methods": ["RTO (real-time)", "SKN", "RTGS", "BI FAST", "Flip",
"Dana"],
  "confirmation": {
    "en": "yes",
    "id": "ya"
  }
}
```

File index.js

```
const BankTransferApp = require('./app/BankTransferApp');

const app = new BankTransferApp();
app.run();
```

OUTPUT

```
PS D:\Semester 6\KONSTRUKSI PERANGKAT LUNAK\Praktikum\08 _ Runtime Configuration dan Internationalization>
>> node index.js
Please insert the amount of money to transfer: 7000
Transfer fee = 6500
Total amount = 13500
Select transfer method:
1. RTO (real-time)
2. SKN
3. RTGS
4. BI FAST
Choose a method (press Enter after): 4
Please type "yes" to confirm the transaction: yes
The transfer is completed
PS D:\Semester 6\KONSTRUKSI PERANGKAT LUNAK\Praktikum\08 _ Runtime Configuration dan Internationalization> |
```

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Pengerjaan Tantangan Bonus:

1. Ubah Bahasa Default Menjadi Bahasa Indonesia

File: data/bank_transfer_config.json

```
"lang": "id"
```

Hasil: Program sekarang menampilkan semua instruksi dan output dalam Bahasa Indonesia.

2. Tambahkan Metode Transfer Baru

File: data/bank_transfer_config.json

Perubahan pada bagian methods:

```
"methods": ["RTO (real-time)", "SKN", "RTGS", "BI FAST",  
"VA (Virtual Account)"]
```

Hasil: Metode tambahan tampil di pilihan transfer.

3. Validasi Input Jumlah Transfer (Bukan Angka)

File: app/BankTransferApp.js

Penambahan kode validasi:

```
if (isNaN(amount)) {  
  console.log(lang === "en"  
    ? "Invalid input. Amount must be a number."  
    : "Input tidak valid. Jumlah harus berupa angka.");  
  this.rl.close();  
  return;  
}
```

Hasil: Program akan menolak input seperti abc dan memberikan pesan kesalahan yang sesuai.

OutPutnya:

```
Masukkan jumlah uang yang akan di-transfer: abc  
Input tidak valid. Jumlah harus berupa angka.  
PS D:\Semester 6\KONSTRUKSI PERANGKAT LUNAK\Praktikum\KPL DwiCandraPratama 2211104035 SE02>
```