Explanation of the Payroll Program Code

This Python script is a **Payroll Calculation Program** that determines a user's earnings based on whether they are **salaried** or **hourly** employees. Below is a breakdown of the code:

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1. License Notice

The script begins with a **Hasan Open License (HOL)**, which specifies:

- The original code repository.
- The need to include a comment when copying or modifying.
- That the software is provided "AS IS" without warranties.

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2. Displaying the Welcome Message

```
print("----------------------------------------")
print("---- Welcome to the Payroll Program ----")
print("----------------------------------------")
```

This prints a **decorative header** to welcome the user.

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3. Selecting Pay Type

```
print("\n-- PAY STRUCTURE --")
print("Salary - 1, Hourly - 2")
paytype = int(input("How are you paid? (Use the chart above): "))
```

- The program asks the user **how they are paid**.
- The user enters 1 for **salary-based pay** or 2 for **hourly-based pay**.

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4. Salary-Based Pay Calculation (`paytype == 1`)

```
if paytype == 1:
    salary = float(input("What is your salary? "))
    totalhours = float(input("How many hours do you need to work? (per week): "))
    hourlyrate = salary/(totalhours*52)
```

```
    hoursworked = float(input("How many hours did you work? "))
    bonuses = float(input("Did you make any extra money? (Amount): "))
    pay = (hourlyrate*hoursworked)+bonuses
```

- The user **enters their yearly salary**.
- The user inputs **expected weekly work hours**.
- The **hourly rate** is calculated as:
  $$\text{hourlyrate} = \frac{\text{salary}}{\text{totalhours} \times 52}$$
- The user enters **actual hours worked** and any **extra bonuses**.
- The **final pay** is calculated as:
  $$\text{pay} = (\text{hourlyrate} \times \text{hoursworked}) + \text{bonuses}$$

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5. Hourly-Based Pay Calculation (`paytype == 2`)

```
elif paytype == 2:
    hourlyrate = float(input("How much do you make in a hour? "))
    salary = (hourlyrate*40)*52
    hoursworked = float(input("How many hours did you work? "))
    bonuses = float(input("Did you make any extra money? (Amount): "))
    pay = (hourlyrate*hoursworked)+bonuses
```

- The user **enters their hourly wage**.
- The **annual salary is estimated** assuming a **40-hour workweek**:
  $$\text{salary} = (\text{hourlyrate} \times 40) \times 52$$
- The user enters **hours worked** and **bonuses**.
- The **final pay** is calculated as:
  $$\text{pay} = (\text{hourlyrate} \times \text{hoursworked}) + \text{bonuses}$$

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6. Handling Invalid Input

```
else:
    print("You entered a invalid input. Please restart the program.")
```

input()

- If the user **enters an invalid number**, they receive an error message.

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7. Displaying the Pay Information

```
print("\n-- PAY DISPLAY --")
print("Your hourly rate is: ${:,.2f}".format(hourlyrate))
print("Your salary is: ${:,.2f}".format(salary))
print("You bonus amount is: ${:,.2f}".format(bonuses))
print("The amount you made is: ${:,.2f}".format(pay))
```

- Displays the **hourly rate**, **salary**, **bonus**, and **total earnings** with **two decimal places and comma formatting**.

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8. Program Exit

```
input("\n-- Press Enter to Exit --")
```

- Waits for the user to press **Enter** before exiting.

Summary of Functionality

Feature	Description
User Input	The user selects **salary** or **hourly** pay.
Salary Calculation	If salaried, calculates **hourly rate** and **pay** based on hours worked.
Hourly Calculation	If hourly, estimates **annual salary** and calculates **pay**.
Bonus Inclusion	Adds any extra earnings.
Error Handling	Displays a message if input is invalid.
Formatted Output	Presents the results neatly with currency formatting.

This script is a **simple payroll calculator** designed to handle basic salary and hourly wage scenarios. 🚀