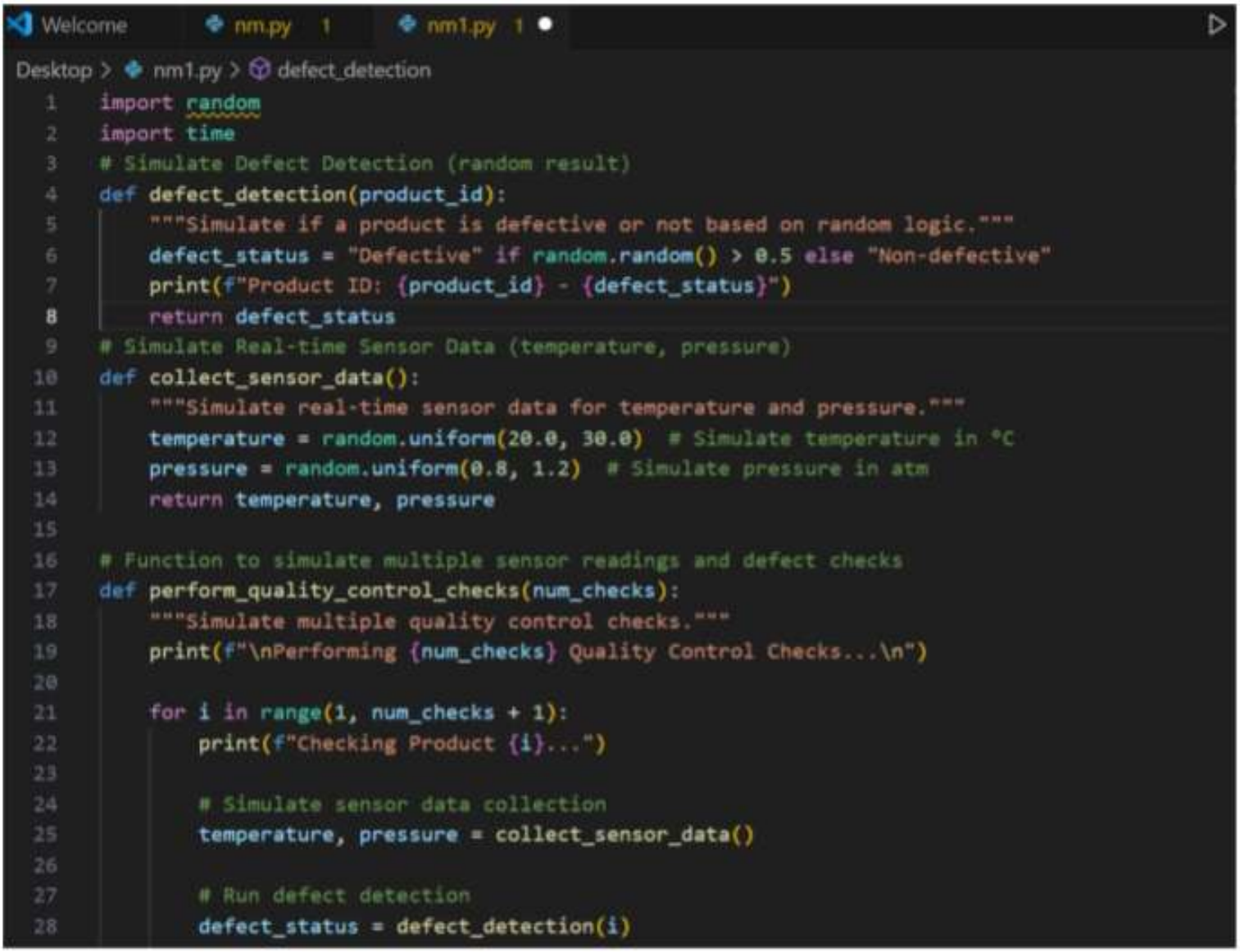
Welcome
nm.py 1
nm1.py 1
Desktop > nm1.py > defect_detection
import random
import time
# Simulate Defect Detection (random result)
def defect_detection(product_id):
"""Simulate if a product is defective or not based on random logic."""
defect_status = "Defective" if random.random() > 0.5 else "Non-defective"
print(f"Product ID: {product_id} - {defect_status}")
return defect_status
# Simulate Real-time Sensor Data (temperature, pressure)
def collect_sensor_data():
"""Simulate real-time sensor data for temperature and pressure."""
temperature = random.uniform(20.0, 30.0) # Simulate temperature in °C
pressure = random.uniform(0.8, 1.2) # Simulate pressure in atm
return temperature, pressure
# Function to simulate multiple sensor readings and defect checks
def perform_quality_control_checks(num_checks):
"""Simulate multiple quality control checks."""
print(f"\nPerforming {num_checks} Quality Control Checks...\n")
for i in range(1, num_checks + 1):
print(f"Checking Product {i}...")
# Simulate sensor data collection
temperature, pressure = collect_sensor_data()
# Run defect detection
defect_status = defect_detection(i)

Welcome nm1.py 1 ●

Desktop > nm1.py > defect_detection

```
17  def perform_quality_control_checks(num_checks):
27          # Run defect detection
28          defect_status = defect_detection(i)
29
30          # Display the collected data and defect status
31          print(f"Temperature: {temperature:.2f} °C")
32          print(f"Pressure: {pressure:.2f} atm")
33          print(f"Defect Status: {defect_status}\n")
34
35          # Simulate a delay between checks (real-time simulation)
36          time.sleep(1)
37
38  # Main function to perform the quality control process
39  def main():
40      print("Welcome to the Quality Control System")
41
42      # Specify how many checks to perform
43      num_checks = 5
44      perform_quality_control_checks(num_checks)
45
46      print("Quality Control Checks Completed.")
47
48  # Run the program
49  if __name__ == "__main__":
50      main()
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

```
Checking Product 1...
Product ID: 1 - Non-defective
Temperature: 24.38 °C
Pressure: 0.82 atm
Defect Status: Non-defective

Checking Product 2...
Product ID: 2 - Non-defective
Temperature: 20.17 °C
Pressure: 1.18 atm
Defect Status: Non-defective

Checking Product 3...
Product ID: 3 - Non-defective
Temperature: 26.53 °C
Pressure: 0.90 atm
Defect Status: Non-defective

Checking Product 4...
Product ID: 4 - Defective
Temperature: 28.71 °C
Pressure: 1.17 atm
Defect Status: Defective

Checking Product 5...
Product ID: 5 - Defective
Temperature: 26.45 °C
Pressure: 0.90 atm
Defect Status: Defective

Quality Control Checks Completed.
```