

The screenshot shows the Microsoft VS Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, ...
- Search Bar:** Search
- Code Editor:** A Python script named "Latihan-1.py" is open. The code prints student information and generates a truth table for logical implication.

```
C: > Users > user > Latihan-1.py > ...
1 print("Nama: Sabrina Dwi Ajeng")
2 print("Nim: 312510308")
3 print("Kelas: TI.25 C5")
4
5 import itertools
6 # Definisi fungsi implikasi
7 def implies(p, q):
8     return (not p) or q
9 # Header tabel
10 print(f"'p':<5}{'q':<5}{'p and q':<10}{'p or q':<10}{'~p':<5}{'p → q':<8}")
11 # Iterasi semua kombinasi p dan q (True/False)
12 for p, q in itertools.product([True, False], repeat=2):
13     print(f"{p:s:<5}{q:s:<5}{(p and q):<10}{(p or q):<10}{(not p):<5}{implies(p, q):<8}")
```

- Terminal:** The terminal shows the execution of the script and its output.

```
PS C:\Users\user\AppData\Local\Programs\Microsoft VS Code> & C:\Users\user\AppData\Local\Programs\Python\Python314\python.exe c:/Users/user/Latihan-1.py
Nama: Sabrina Dwi Ajeng
Nim: 312510308
Kelas: TI.25 C5
p   q   p and q   p or q   ~p   p → q
True True  True   True   False  True
True False  False  True   False  False
False True  False  True   True   True
False False  False  False  True   True
PS C:\Users\user\AppData\Local\Programs\Microsoft VS Code>
```

- Status Bar:** Shows file counts (0 0 0), encoding (Spaces: 4), character set (UTF-8), Python version (Python 3.14 (64-bit)), and system status (21.49, 02/11/2025).

The screenshot shows a Microsoft VS Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, ...
- Search Bar:** Search
- Toolbar Icons:** Save, Undo, Redo, Find, Replace, Copy, Paste, Select All, Find in Files, Open Recent, Open Taskbar, Open Taskbar, Open Taskbar, Open Taskbar.
- Left Sidebar:** Includes icons for File, Find, Replace, Open Taskbar, and Python.
- Code Editor:** The active file is "Latihan-2.py". The code implements a proof by contradiction for the statement "If n^2 is odd, then n is odd". It defines a function `is_odd` and uses a loop to check all numbers from 1 to 100. If it finds a counterexample where n is even and n^2 is odd, it prints a contradiction and returns `False`. Otherwise, it prints a message confirming the original statement and returns `True`.

```
C: > Users > user > Latihan-2.py > ...
1 print("Nama: Sabrina Dwi Ajeng")
2 print("Nim: 312510308")
3 print("Kelas: TI.25 C5")
4
5 # bukti_kontradiksi.py
6 # Program bukti kontradiksi: Jika  $n^2$  ganjil, maka n juga ganjil
7
8 def is_odd(n):
9     """Fungsi untuk cek apakah n ganjil."""
10    return n % 2 == 1
11
12 def proof_by_contradiction():
13
14     print("Mengasumsikan kebalikan: Ada n genap sehingga  $n^2$  ganjil.")
15     for n in range(1, 101): # Cek untuk n dari 1 hingga 100
16         if is_odd(n**2) and not is_odd(n): # n genap tapi  $n^2$  ganjil
17             print(f"Kontradiksi ditemukan pada n={n} (n genap,  $n^2={n**2}$  ganjil)!")
18             return False # Kontradiksi, pernyataan asli salah
19     print("Tidak ada kontradiksi ditemukan → pernyataan benar (jika  $n^2$  ganjil maka n ganjil).")
20
21 return True
```

- Bottom Status Bar:** Line 24, Col 56, Spaces: 4, UTF-8, CRLF, Python, Python 3.14 (64-bit), 22.17, 02/11/2025.

The screenshot shows the Microsoft Visual Studio Code (VS Code) interface. The top menu bar includes File, Edit, Selection, View, Go, Run, and a search bar. The left sidebar contains icons for file operations like Open, Save, Find, and others. The main editor area has tabs for 'Latihan-1.py', 'Latihan-2.py', and 'Latihan-3.py X'. The code in 'Latihan-3.py' is as follows:

```
C: > Users > user > Latihan-3.py > check_tautology
1 print("Nama: Sabrina Dwi Ajeng")
2 print("Nim: 312510308")
3 print("Kelas: TI.25 C5")
4
5 # cek_tautologi.py
6 # Program untuk memeriksa apakah  $(p \wedge q) \rightarrow p$  adalah tautologi
7
8 import itertools
9
10 def implies(a, b):
11     """Fungsi implikasi:  $a \rightarrow b$  setara dengan  $\neg a \text{ or } b$ """
12     return not a or b
13
14 def check_tautology():
15     tautology = True
16     print("Truth table untuk  $(p \wedge q) \rightarrow p$ :")
17     for p, q in itertools.product([True, False], repeat=2):
18         result = implies(p and q, p)
19         print(f"p={p}, q={q},  $(p \wedge q) \rightarrow p = {result}$ ")
20         if not result:
21             tautology = False
22
23 if not tautology:
24     print("Kesimpulan: TAK TAUTOLOGI")
25 else:
26     print("Kesimpulan: TAUTOLOGI")
```

The terminal below the editor shows the execution of the script:

```
PS C:\Users\user\AppData\Local\Programs\Microsoft VS Code> & C:\Users\user\AppData\Local\Programs\Python\Python314\python.exe c:/Users/user/Latihan-3.py
Nama: Sabrina Dwi Ajeng
Nim: 312510308
Kelas: TI.25 C5
Truth table untuk  $(p \wedge q) \rightarrow p$ :
p=True, q=True,  $(p \wedge q) \rightarrow p = \text{True}$ 
p=True, q=False,  $(p \wedge q) \rightarrow p = \text{True}$ 
p=False, q=True,  $(p \wedge q) \rightarrow p = \text{True}$ 
p=False, q=False,  $(p \wedge q) \rightarrow p = \text{True}$ 

Kesimpulan: TAUTOLOGI
PS C:\Users\user\AppData\Local\Programs\Microsoft VS Code>
```

The status bar at the bottom indicates the code is 199+ lines long, with 22 lines, 74 columns, 4 spaces, and using UTF-8 encoding. It also shows Python 3.14 (64-bit) is selected. The system tray shows battery level (22.29%), signal strength, and the date (02/11/2025).

C: > Users > user > Latihan-PPT.py > ...

```
23     print("\n==== Soal 2: Tautologi  $(p \wedge q) \wedge (q \vee p)$  ===")
24     print("Truth table untuk  $(p \wedge q) \wedge (q \vee p)$ :")
25
26     # Truth table untuk  $(p \wedge q) \wedge (q \vee p)$ 
27     is_tautology = True
28     for p in [True, False]:
29         for q in [True, False]:
30             pq_and = p and q
31             q_or_p = q or p
32             result = pq_and and q_or_p
33             print(f"p={p}, q={q} ->  $(p \wedge q) \wedge (q \vee p) = {result}$ ")
34             if not result:
35                 is_tautology = False
36     print(f"Apakah tautologi? {is_tautology}")
37
38     print("\n==== Soal 3: Validitas  $(p \rightarrow q) \wedge (q \rightarrow r) \rightarrow (p \rightarrow r)$  ===")
39     print("Truth table untuk  $(p \rightarrow q) \wedge (q \rightarrow r) \rightarrow (p \rightarrow r)$ :")
40
41     # Truth table untuk  $(p \rightarrow q) \wedge (q \rightarrow r) \rightarrow (p \rightarrow r)$ 
42     is_valid = True
43     for p in [True, False]:
44         for q in [True, False]:
45             for r in [True, False]:
46                 p_imp_q = not p or q
47                 q_imp_r = not q or r
48                 premise = p_imp_q and q_imp_r
49                 conclusion = not p or r
50                 result = not premise or conclusion # premise → conclusion
51                 print(f"p={p}, q={q}, r={r} -> Premise→Conclusion = {result}")
52                 if not result:
53                     is_valid = False
54     print(f"Apakah valid? [{is_valid}]")
```

X 0 0 0 Spaces: 4 UTF-8 () Python Python 3.14 (64-bit) Q

Windows taskbar icons: File Explorer, Edge, Microsoft Store, File Manager, Task View, Mail, and a 99+ notifications icon.

System tray icons: Network, Battery, Volume, and Date/Time (22.38, 02/11/2025).

```
C: > Users > user > Latihan-PPT.py > ...
1  print("Nama: Sabrina Dwi Ajeng")
2  print("Nim: 312510308")
3  print("Kelas: TI.25 C5")
4
5  # logika_matematika.py
6  # Program untuk membuktikan soal logika matematika
7
8  print("== Soal 1: Bukti Kontradiksi ==")
9  print("Tidak ada bilangan bulat n sehingga  $n^2 = 3m + 2$ ")
10 print("Bukti: Asumsikan ada n, maka  $n^2 \equiv 2 \pmod{3}$ . Tapi  $0^2 \equiv 0$ ,  $1^2 \equiv 1$ ,  $2^2 \equiv 1 \pmod{3}$ . Tidak ada yang  $\equiv 2$ , kontradiksi.")
11 print("Verifikasi dengan kode: Cek untuk n dari -10 hingga 10.")
12
13 # Cek untuk n kecil apakah ada m integer yang memenuhi  $n^2 = 3m + 2$ 
14 found = False
15 for n in range(-10, 11):
16     for m in range(-10, 11):
17         if n**2 == 3*m + 2:
18             print(f"Ditemukan: n={n}, m={m}")
19             found = True
20 if not found:
21     print("Tidak ada solusi untuk n, m integer kecil. Kontradiksi terbukti.")
22
23 print("\n== Soal 2: Tautologi  $(p \wedge q) \wedge (q \vee p) \equiv$ ")
24 print("Truth table untuk  $(p \wedge q) \wedge (q \vee p)$ :")
25
26 # Truth table untuk  $(p \wedge q) \wedge (q \vee p)$ 
27 is_tautology = True
28 for p in [True, False]:
29     for q in [True, False]:
30         pq_and = p and q
31         q_or_p = q or p
32         result = pq_and and q_or_p
```

Spaces: 4 UTF-8 () Python Python 3.14 (64-bit) 22.35 02/11/2025

