

## BrightLight Tutorials

### Data Analytics

#### Exercise: NULL Functions

##### Instructions:

- Write answers on paper with a pen.
  - Draw tables of the final outcome.
  - In the SELECT statement, choose relevant columns to display, if not specified.
  - Scan the completed work into a PDF file and email to:  
rophiwa@brightlighttutorials.co.za
  - Use the provided tables and write SQL queries to solve each question.
  - Use NULL-handling functions (IFNULL(), ISNULL(), COALESCE(), etc.).
  - For each question, match your output columns to the **expected output** format.
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**Table 1: Employees**

employee_id	name	department	salary
1	Alice	HR	5000
2	Bob	IT	NULL
3	Charlie	NULL	7000
4	Dana	Finance	NULL

**Q1. Show all employees with their salary. If salary is NULL, display 0.**

**Expected Columns:** employee\_id, name, salary\_with\_default

**Q2. Show employee names with their department. If department is NULL, show "Not Assigned".**

**Expected Columns:** employee\_id, name, department\_name

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**Table 2: Orders**

order_id	customer_id	delivery_date
101	201	2024-12-01
102	202	NULL
103	NULL	2024-12-03

**Q3. Find orders with NULL customer\_id using ISNULL().**

**Expected Columns:** order\_id, customer\_id

**Q4. Show all orders. If delivery\_date is NULL, show 'Pending'.**

**Expected Columns:** order\_id, customer\_id, delivery\_status

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**Table 3: Students**

student_id	name	grade
1	Ethan	85
2	Maya	NULL
3	Olivia	90

**Q5. Show all students and their grades. Replace NULL with 0.**

**Expected Columns:** student\_id, name, final\_grade

**Q6. Count students who haven't been graded.**

**Expected Columns:** not\_graded\_count

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**Table 4: Products**

product_id	name	price	discount
501	Keyboard	25	NULL
502	Mouse	15	5
503	Monitor	100	NULL

**Q7. Show product name, price, and final price after discount (assume 0 if discount is NULL).**

**Expected Columns:** product\_id, name, final\_price

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**Table 5: Customers**

customer_id	name	email
1	Linda	NULL
2	Joseph	joseph@mail.com
3	Nia	NULL

**Q8. Count how many customers have no email.**

**Expected Columns:** missing\_email\_count

**Q9. Show all customers with email. If NULL, display "No Email".**

**Expected Columns:** customer\_id, name, email\_display

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**Table 6: Payments**

payment_id	method	status
301	Credit	NULL
302	PayPal	Success
303	NULL	Failed

**Q10. Show payment details with method replaced by "Unknown" if NULL.**

**Expected Columns:** payment\_id, method\_display, status

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**Table 7: Inventory**

item_id	item_name	quantity
1	Pen	NULL
2	Notebook	150
3	Eraser	NULL

**Q11. Show items and their quantity (0 if NULL).**

**Expected Columns:** item\_id, item\_name, quantity\_checked

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**Table 8: Employees\_Extra**

emp_id	bonus	commission
1	NULL	300
2	100	NULL
3	NULL	NULL

**Q12. Show employee ID and the first available value among bonus or commission.**

**Expected Columns:** emp\_id, first\_available\_reward

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**Table 9: Classes**

class_id	subject	room
11	Math	NULL
12	Science	Lab A
13	English	NULL

**Q13. Count classes that don't have a room assigned.**

**Expected Columns:** no\_room\_count

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**Table 10: Attendance**

student_id	date	status
1	2025-04-01	NULL
2	2025-04-01	Present
3	2025-04-01	Absent

**Q14. Show attendance records with status. Replace NULL with "Not Marked".**

**Expected Columns:** student\_id, date, attendance\_status

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**Table 11: Bank\_Accounts**

account_id	account_type	balance
A1	Savings	NULL
A2	Current	5000
A3	NULL	2000

**Q15. Show account ID, account\_type (or 'Unknown'), and balance (or 0).**

**Expected Columns:** account\_id, type\_display, balance\_checked

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**Table 12: Projects**

project_id	title	start_date	end_date
1	Website Revamp	2025-01-10	NULL
2	Mobile App	NULL	2025-06-01
3	Data Migration	NULL	NULL

**Q16. Show all projects with a start date. If start\_date is NULL, display 'TBD'.**

**Expected Columns:** project\_id, title, start\_display

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**Table 13: Reviews**

review_id	product_id	comment	rating
1	501	Great product	4
2	502	NULL	NULL
3	503	Works fine	3

**Q17. Display reviews showing comment (or 'No Comment') and rating (or 0).**

**Expected Columns:** review\_id, product\_id, comment\_display, rating\_display

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**Table 14: Suppliers**

supplier_id	name	phone	alt_phone
1	Global Goods	NULL	123456789
2	Best Supplies	987654321	NULL
3	ValueSource	NULL	NULL

**Q18. Show the supplier contact number. Use COALESCE(phone, alt\_phone, 'No Contact').**

**Expected Columns:** supplier\_id, name, contact\_number

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**Table 15: User\_Settings**

user_id	theme	language	timezone
1	NULL	English	NULL
2	Dark	NULL	UTC+1
3	NULL	NULL	NULL

**Q19. Show all users and their preferences. Replace all NULLs with defaults:**

- Theme → "Light"
- Language → "English"
- Timezone → "UTC"

**Expected Columns:** user\_id, theme\_set, language\_set, timezone\_set

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**Table 16: Maintenance**

record_id	machine_id	issue	technician
1	M101	Overheating	NULL
2	M102	NULL	NULL
3	M103	Jammed	Alex

**Q20. Show maintenance log with:**

- issue → default to "Unknown Issue"
- technician → default to "Not Assigned"

**Expected Columns:** record\_id, machine\_id, issue\_log, technician\_name