Applications of Functions

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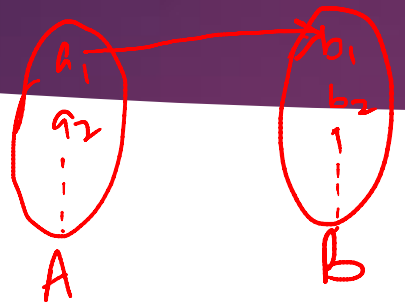
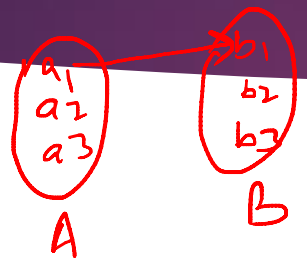
Applications of functions



- Aadhar card
- Every Indian citizen holds a unique 12-digit aadhar number printed on aadhar card. Only one aadhar number is allotted to one individual. So, this is one-to-one mapping/ function

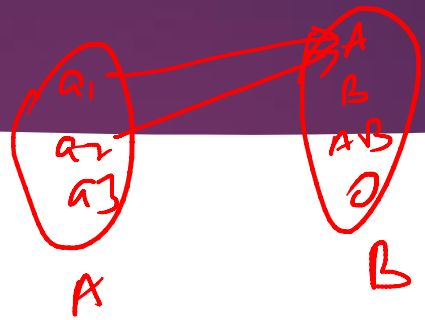
Applications of functions (Contd…)



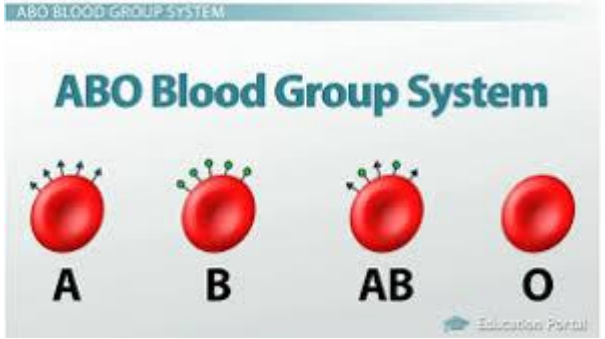
- ATM

ATM debit card is mapped to a single savings/ current bank account. Only one bank account is linked with a debit card. This is an example of One-to-one mapping/function

Applications of functions (Contd…)



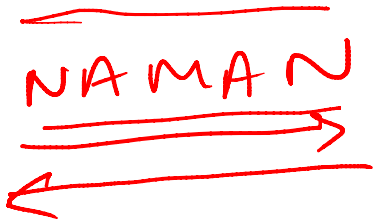
- Blood group mapping
- Every human being has one of the four blood groups – A, B, AB and O. So, blood group of all Human beings can be mapped to only these four blood groups. This is an example of many-to-one mapping/function



Applications of functions (Contd…)

- Recursive functions

1. Palindrome checker
   - Reverse strings can be obtained from recursive functions
2. Decimal to binary conversion
   - Decimal numbers are repeatedly divided by 2 in this process, which can be done easily by recursive functions
3. Balanced paranthesis checker
   - Opening and closing of parenthesis can be matched using recursive functions



Binary
Decimal
Octal
Hexadecimal.

$(12)_{10} = (1100)_2$

$((a+b)*c)$

$((a+b)*c$

Activity time

Assume, you have an Amazon.in coupon of getting ₹ 50 off on a particular item and also, the item you think of buying is on 20% off. What do you think is better: taking ₹ 50 off first and then applying discount or applying discount first and then taking ₹ 50 off?

- To solve this, we need **FUNCTIONS** !!!
- First, represent these cases as functions, assuming x as MRP of the item
  - So, we have
    - g(x) = x – 50 and
    - f(x) = x – 0.2x = 0.8x

$fog(x)$

$gof(x)$

$(f \circ g)x = f(g(x)) = f(x-50) = 0.8(x-50) = 0.8x - 40$ — (1)

$(g \circ f)(x) = g(f(x)) = g(0.8x) = 0.8x - 50$ — (2)

(1) − (2) $= 0.8x - 40 - 0.8x + 50 = \boxed{10}$

$(g \circ f)(x)$ → 20% off & then Rs. 50 off.

$g(x) = x - 50$

$f(x) = 0.8x$

Thank you