List-Operations.R

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```
#Create a list named employee representing the details of an employee with the following comp
onents:
#EmployeeID: A unique employee identifier (as a numeric value).
#Name: The employee's full name (as a string).
#Salary: The employee's monthly salary (as a numeric value).
#Departments: A vector containing the names of the departments the employee is associated wit
h (as strings).
#Display the entire content of the employee list.

employee <- list(EmployeeID = 101, Name= "Shawn", Salary = 51599, Departments = c("Marketin
g","Finance"))
employee
```

```
## $EmployeeID
## [1] 101
##
## $Name
## [1] "Shawn"
##
## $Salary
## [1] 51599
##
## $Departments
## [1] "Marketing" "Finance"
```

```
#Calculate and print the employee's annual salary (12 times the monthly salary).
annual_salary = employee$Salary *12
annual_salary
```

```
## [1] 619188
```

```
#Update the employee's name to a different name.
employee$Name = "Nintu"
employee
```

```
## $EmployeeID
## [1] 101
##
## $Name
## [1] "Nintu"
##
## $Salary
## [1] 51599
##
## $Departments
## [1] "Marketing" "Finance"
```

```
#Add a new department to the Departments vector for the employee.
employee$Departments = c(employee$Departments,"Sales")
employee
```

```
## $EmployeeID
## [1] 101
##
## $Name
## [1] "Nintu"
##
## $Salary
## [1] 51599
##
## $Departments
## [1] "Marketing" "Finance"   "Sales"
```

```
#Create a list named organization to represent an organization with the following components:
#Name: The name of the organization (as a string).
#Employees: A list containing details of at least three employees, using the structure create
d in Task 1.

organization <- list(Name = "Oracle", Employees = list(employee,
                                                       list(EmployeeID = 102,Name= "Vishnu",
                                                            Salary = 86399, Departments = c
("Development","Management")),
                                                       list(EmployeeID = 103, Name= "Alwin",
                                                            Salary = 76431, Departments = c
("Sales","Management"))))
#Display the entire content of the nested list organization.
organization
```

```
## $Name
## [1] "Oracle"
##
## $Employees
## $Employees[[1]]
## $Employees[[1]]$EmployeeID
## [1] 101
##
## $Employees[[1]]$Name
## [1] "Nintu"
##
## $Employees[[1]]$Salary
## [1] 51599
##
## $Employees[[1]]$Departments
## [1] "Marketing" "Finance"   "Sales"
##
##
## $Employees[[2]]
## $Employees[[2]]$EmployeeID
## [1] 102
##
## $Employees[[2]]$Name
## [1] "Vishnu"
##
## $Employees[[2]]$Salary
## [1] 86399
##
## $Employees[[2]]$Departments
## [1] "Development" "Management"
##
##
## $Employees[[3]]
## $Employees[[3]]$EmployeeID
## [1] 103
##
## $Employees[[3]]$Name
## [1] "Alwin"
##
## $Employees[[3]]$Salary
## [1] 76431
##
## $Employees[[3]]$Departments
## [1] "Sales"      "Management"
```

```
#Access and print the annual salary of the second employee in the organization.
Second_emp = organization$Employees[[2]]$Salary*12
Second_emp
```

```
## [1] 1036788
```

```
#Access and print the name of the organization.
organization$Name
```

```
## [1] "Oracle"
```

```
#Create a new list named department_employees that groups employees by department.Each depart
ment should have a list of employees associated with it.
department_employees <- list()

for (emp in organization$Employees) {
  departments <- emp$Departments
  for (dept in departments) {
    if (dept %in% names(department_employees)) {
      department_employees[[dept]] <- c(department_employees[[dept]], emp$Name)
    } else {
      department_employees[[dept]] <- list(emp$Name)
    }
  }
}
department_employees
```

```
## $Marketing
## $Marketing[[1]]
## [1] "Nintu"
##
##
## $Finance
## $Finance[[1]]
## [1] "Nintu"
##
##
## $Sales
## $Sales[[1]]
## [1] "Nintu"
##
## $Sales[[2]]
## [1] "Alwin"
##
##
## $Development
## $Development[[1]]
## [1] "Vishnu"
##
##
## $Management
## $Management[[1]]
## [1] "Vishnu"
##
## $Management[[2]]
## [1] "Alwin"
```

```
#Print each list created in the script to show the structure and content of the lists after p
erforming the operations in Tasks 1-5.
str(department_employees);department_employees
```

```
## List of 5
##  $ Marketing  :List of 1
##   ..$ : chr "Nintu"
##  $ Finance    :List of 1
##   ..$ : chr "Nintu"
##  $ Sales      :List of 2
##   ..$ : chr "Nintu"
##   ..$ : chr "Alwin"
##  $ Development:List of 1
##   ..$ : chr "Vishnu"
##  $ Management :List of 2
##   ..$ : chr "Vishnu"
##   ..$ : chr "Alwin"
```

```
## $Marketing
## $Marketing[[1]]
## [1] "Nintu"
##
##
## $Finance
## $Finance[[1]]
## [1] "Nintu"
##
##
## $Sales
## $Sales[[1]]
## [1] "Nintu"
##
## $Sales[[2]]
## [1] "Alwin"
##
##
## $Development
## $Development[[1]]
## [1] "Vishnu"
##
##
## $Management
## $Management[[1]]
## [1] "Vishnu"
##
## $Management[[2]]
## [1] "Alwin"
```

```
str(employee);employee
```

```
## List of 4
##  $ EmployeeID : num 101
##  $ Name       : chr "Nintu"
##  $ Salary     : num 51599
##  $ Departments: chr [1:3] "Marketing" "Finance" "Sales"
```

```
## $EmployeeID
## [1] 101
##
## $Name
## [1] "Nintu"
##
## $Salary
## [1] 51599
##
## $Departments
## [1] "Marketing" "Finance"   "Sales"
```

```
str(organization$Employees);organization$Employees
```

```
## List of 3
##  $ :List of 4
##   ..$ EmployeeID : num 101
##   ..$ Name       : chr "Nintu"
##   ..$ Salary     : num 51599
##   ..$ Departments: chr [1:3] "Marketing" "Finance" "Sales"
##  $ :List of 4
##   ..$ EmployeeID : num 102
##   ..$ Name       : chr "Vishnu"
##   ..$ Salary     : num 86399
##   ..$ Departments: chr [1:2] "Development" "Management"
##  $ :List of 4
##   ..$ EmployeeID : num 103
##   ..$ Name       : chr "Alwin"
##   ..$ Salary     : num 76431
##   ..$ Departments: chr [1:2] "Sales" "Management"
```

```
## [[1]]
## [[1]]$EmployeeID
## [1] 101
##
## [[1]]$Name
## [1] "Nintu"
##
## [[1]]$Salary
## [1] 51599
##
## [[1]]$Departments
## [1] "Marketing" "Finance"   "Sales"
##
##
## [[2]]
## [[2]]$EmployeeID
## [1] 102
##
## [[2]]$Name
## [1] "Vishnu"
##
## [[2]]$Salary
## [1] 86399
##
## [[2]]$Departments
## [1] "Development" "Management"
##
##
## [[3]]
## [[3]]$EmployeeID
## [1] 103
##
## [[3]]$Name
## [1] "Alwin"
##
## [[3]]$Salary
## [1] 76431
##
## [[3]]$Departments
## [1] "Sales"      "Management"
```

```
str(organization);organization
```

```
## List of 2
##  $ Name     : chr "Oracle"
##  $ Employees:List of 3
##   ..$ :List of 4
##   .. ..$ EmployeeID : num 101
##   .. ..$ Name       : chr "Nintu"
##   .. ..$ Salary     : num 51599
##   .. ..$ Departments: chr [1:3] "Marketing" "Finance" "Sales"
##   ..$ :List of 4
##   .. ..$ EmployeeID : num 102
##   .. ..$ Name       : chr "Vishnu"
##   .. ..$ Salary     : num 86399
##   .. ..$ Departments: chr [1:2] "Development" "Management"
##   ..$ :List of 4
##   .. ..$ EmployeeID : num 103
##   .. ..$ Name       : chr "Alwin"
##   .. ..$ Salary     : num 76431
##   .. ..$ Departments: chr [1:2] "Sales" "Management"
```

```
## $Name
## [1] "Oracle"
##
## $Employees
## $Employees[[1]]
## $Employees[[1]]$EmployeeID
## [1] 101
##
## $Employees[[1]]$Name
## [1] "Nintu"
##
## $Employees[[1]]$Salary
## [1] 51599
##
## $Employees[[1]]$Departments
## [1] "Marketing" "Finance"   "Sales"
##
##
## $Employees[[2]]
## $Employees[[2]]$EmployeeID
## [1] 102
##
## $Employees[[2]]$Name
## [1] "Vishnu"
##
## $Employees[[2]]$Salary
## [1] 86399
##
## $Employees[[2]]$Departments
## [1] "Development" "Management"
##
##
## $Employees[[3]]
## $Employees[[3]]$EmployeeID
## [1] 103
##
## $Employees[[3]]$Name
## [1] "Alwin"
##
## $Employees[[3]]$Salary
## [1] 76431
##
## $Employees[[3]]$Departments
## [1] "Sales"      "Management"
```

```
#Also, print the department_employees list to demonstrate how employees are grouped by depart
ment.

print("Department Employees List:")
```

```
## [1] "Department Employees List:"
```

```
print(department_employees)
```

```
## $Marketing
## $Marketing[[1]]
## [1] "Nintu"
##
##
## $Finance
## $Finance[[1]]
## [1] "Nintu"
##
##
## $Sales
## $Sales[[1]]
## [1] "Nintu"
##
## $Sales[[2]]
## [1] "Alwin"
##
##
## $Development
## $Development[[1]]
## [1] "Vishnu"
##
##
## $Management
## $Management[[1]]
## [1] "Vishnu"
##
## $Management[[2]]
## [1] "Alwin"
```