Task-3–List-Operations.R

aaron

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```
#Create a list named employee representing the details of an employee with the fol
lowing components:
#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 ass
ociated with (as strings).
employee = list(
  EmployeeID = 01,
  Name = "Arn",
  Salary = 5000,
  Departments = c("HR", "Finance")
)
#Display the entire content of the employee list.
cat("Employee ID :",employee$EmployeeID,"Employee Name :",employee$Name,"Employee
Salary : $",employee$Salary,"Employee Dep : ",employee$Departments)
```

```
## Employee ID : 1 Employee Name : Arn Employee Salary : $ 5000 Employee Dep :  HR
Finance
```

```
#Calculate and print the employee's annual salary (12 times the monthly salary).
annual_salary = employee$Salary * 12;cat("employee's annual salary : $",annual_sal
ary)
```

```
## employee's annual salary : $ 60000
```

```
#Update the employee's name to a different name.
employee$Name = "Aaron";cat("Updated name is ",employee$Name)
```

```
## Updated name is  Aaron
```

```
#Add a new department to the Departments vector for the employee.
employee$Departments = c(employee$Departments,"Computer");cat("Updated Dep are ",e
mployee$Departments)
```

```
## Updated Dep are  HR Finance Computer
```

```r
#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 created in Task 1.
organization = list(
  organization_Name = "RMZ",
  employees = list(
    employee,
    list(
      EmployeeID = 2,
      Name = "Alice Johnson",
      Salary = 6000,
      Departments = c("Sales", "Marketing")
    ),
    list(
      EmployeeID = 3,
      Name = "Bob Wilson",
      Salary = 5500,
      Departments = c("IT")
    )
  )
)
#Display the entire content of the nested list organization.
organization
```

```
## $organization_Name
## [1] "RMZ"
##
## $employees
## $employees[[1]]
## $employees[[1]]$EmployeeID
## [1] 1
##
## $employees[[1]]$Name
## [1] "Aaron"
##
## $employees[[1]]$Salary
## [1] 5000
##
## $employees[[1]]$Departments
## [1] "HR"       "Finance"  "Computer"
##
##
## $employees[[2]]
## $employees[[2]]$EmployeeID
## [1] 2
##
## $employees[[2]]$Name
## [1] "Alice Johnson"
##
## $employees[[2]]$Salary
## [1] 6000
##
## $employees[[2]]$Departments
## [1] "Sales"     "Marketing"
##
##
## $employees[[3]]
## $employees[[3]]$EmployeeID
## [1] 3
##
## $employees[[3]]$Name
## [1] "Bob Wilson"
##
## $employees[[3]]$Salary
## [1] 5500
##
## $employees[[3]]$Departments
## [1] "IT"
```

```
#Access and print the annual salary of the second employee in the organization.
annual_salary_2nd_emp = organization$employees[[2]]$Salary*12;cat("annual salary o
f the second employee in the organization is $",annual_salary_2nd_emp)
```

```
## annual salary of the second employee in the organization is $ 72000
```

```r
#Access and print the name of the organization.
cat("organization Name : ",organization$organization_Name)
```

```
## organization Name :  RMZ
```

```r
#Create a new list named department_employees that groups employees by department.
Each department should have a list of employees associated with it.
department_employees <- list(
  HR = list(),
  Finance = list(),
  Sales = list(),
  Marketing = list(),
  IT = list(),
  Computer = list()
)

for (emp in organization$employees) {
  for (dept in emp$Departments) {
    department_employees[[dept]] <- c(department_employees[[dept]], emp$Name)
    }
  }
department_employees
```

```
## $HR
## $HR[[1]]
## [1] "Aaron"
##
##
## $Finance
## $Finance[[1]]
## [1] "Aaron"
##
##
## $Sales
## $Sales[[1]]
## [1] "Alice Johnson"
##
##
## $Marketing
## $Marketing[[1]]
## [1] "Alice Johnson"
##
##
## $IT
## $IT[[1]]
## [1] "Bob Wilson"
##
##
## $Computer
## $Computer[[1]]
## [1] "Aaron"
```

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

```
## List of 6
##  $ HR       :List of 1
##   ..$ : chr "Aaron"
##  $ Finance  :List of 1
##   ..$ : chr "Aaron"
##  $ Sales    :List of 1
##   ..$ : chr "Alice Johnson"
##  $ Marketing:List of 1
##   ..$ : chr "Alice Johnson"
##  $ IT       :List of 1
##   ..$ : chr "Bob Wilson"
##  $ Computer :List of 1
##   ..$ : chr "Aaron"
```

```
## $HR
## $HR[[1]]
## [1] "Aaron"
##
##
## $Finance
## $Finance[[1]]
## [1] "Aaron"
##
##
## $Sales
## $Sales[[1]]
## [1] "Alice Johnson"
##
##
## $Marketing
## $Marketing[[1]]
## [1] "Alice Johnson"
##
##
## $IT
## $IT[[1]]
## [1] "Bob Wilson"
##
##
## $Computer
## $Computer[[1]]
## [1] "Aaron"
```

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

```
## List of 4
##  $ EmployeeID : num 1
##  $ Name       : chr "Aaron"
##  $ Salary     : num 5000
##  $ Departments: chr [1:3] "HR" "Finance" "Computer"
```

```
## $EmployeeID
## [1] 1
##
## $Name
## [1] "Aaron"
##
## $Salary
## [1] 5000
##
## $Departments
## [1] "HR"       "Finance"  "Computer"
```

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

```
## List of 2
##  $ organization_Name: chr "RMZ"
##  $ employees        :List of 3
##   ..$ :List of 4
##   .. ..$ EmployeeID : num 1
##   .. ..$ Name       : chr "Aaron"
##   .. ..$ Salary     : num 5000
##   .. ..$ Departments: chr [1:3] "HR" "Finance" "Computer"
##   ..$ :List of 4
##   .. ..$ EmployeeID : num 2
##   .. ..$ Name       : chr "Alice Johnson"
##   .. ..$ Salary     : num 6000
##   .. ..$ Departments: chr [1:2] "Sales" "Marketing"
##   ..$ :List of 4
##   .. ..$ EmployeeID : num 3
##   .. ..$ Name       : chr "Bob Wilson"
##   .. ..$ Salary     : num 5500
##   .. ..$ Departments: chr "IT"
```

```
## $organization_Name
## [1] "RMZ"
##
## $employees
## $employees[[1]]
## $employees[[1]]$EmployeeID
## [1] 1
##
## $employees[[1]]$Name
## [1] "Aaron"
##
## $employees[[1]]$Salary
## [1] 5000
##
## $employees[[1]]$Departments
## [1] "HR"       "Finance"  "Computer"
##
##
## $employees[[2]]
## $employees[[2]]$EmployeeID
## [1] 2
##
## $employees[[2]]$Name
## [1] "Alice Johnson"
##
## $employees[[2]]$Salary
## [1] 6000
##
## $employees[[2]]$Departments
## [1] "Sales"     "Marketing"
##
##
## $employees[[3]]
## $employees[[3]]$EmployeeID
## [1] 3
##
## $employees[[3]]$Name
## [1] "Bob Wilson"
##
## $employees[[3]]$Salary
## [1] 5500
##
## $employees[[3]]$Departments
## [1] "IT"
```

```
#print the department_employees list to demonstrate how employees are grouped by d
epartment.
department_employees
```

```
## $HR
## $HR[[1]]
## [1] "Aaron"
##
##
## $Finance
## $Finance[[1]]
## [1] "Aaron"
##
##
## $Sales
## $Sales[[1]]
## [1] "Alice Johnson"
##
##
## $Marketing
## $Marketing[[1]]
## [1] "Alice Johnson"
##
##
## $IT
## $IT[[1]]
## [1] "Bob Wilson"
##
##
## $Computer
## $Computer[[1]]
## [1] "Aaron"
```