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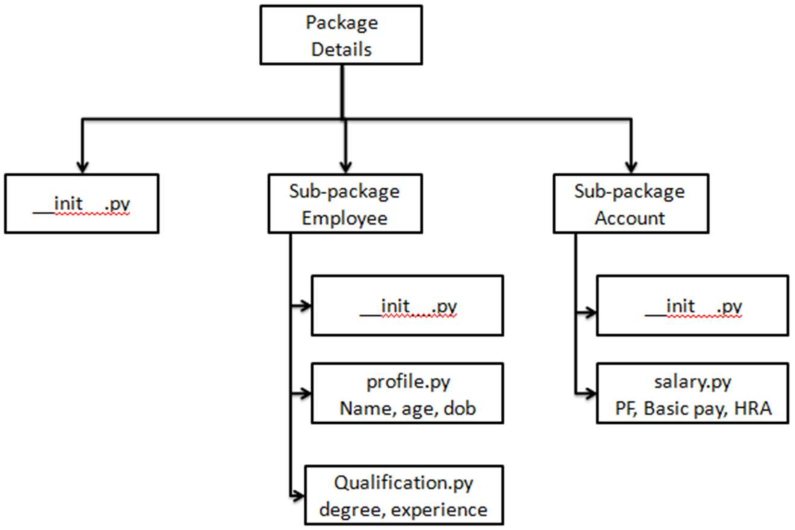
EXPERIMENT 7

Q1.

1.	Python program to demonstrate use of packages.  Package Details __init__.py Sub-package Employee Sub-package Account __init__.py __init__.py profile.py Name, age, dob salary.py PF, Basic pay, HRA Qualification.py degree, experience Create a file to import all the packages , calculate the salary and display all the details of the Employee Salary = Basic +H.R.A – P.F.

A package is a folder containing modules and maybe other folders that themselves may contain more folders and modules. Conceptually, it’s a namespace. This simply means that a package’s modules are bound together by a package name, by which they may be referenced.

A package must have a __init__.py file which tells the interpreter that this folder is a package. It may be empty, or it may contain some code to be executed upon initialization of the package.
A package may also contain subpackages, having their own __init__.py files and their own modules.

For example, say we have a package Game with a subpackage Sound and a module ‘load’
To import the module, we type the following:

import Game.Sound.load

We can also import it giving it an alias:

import Game.Sound.load as game

You can’t import a function using the dot operator(.) For that, you must type this:

from Game.Sound.load import volume_up

CODE:

main.py:

```
from package.Account.salary import Salary
from package.Employee.profile import Profile
from package.Employee.Qualification import Qualification

n = int(input("Enter number of Employees: "))
emp_list = []
for i in range(n):
    name = input(f"Enter Name of Employee {i+1}: ")
    age = input(f"Enter Age of Employee {i+1}: ")
    dob = input(f"Enter Birth Year of Employee {i+1}: ")
    degree = input(f"Enter Degree of Employee {i+1}: ")
    experience = input(f"Enter Experience of Employee {i+1} (in years): ")
    basic = int(input(f"Enter Basic Pay of Employee {i+1}: "))
    hra = int(input(f"Enter HRA of Employee {i+1}: "))
    pf = int(input(f"Enter PF of Employee {i+1}: "))
    emp_prof = Profile(name, age, dob)
    emp_q = Qualification(degree, experience)
    emp_s = Salary(pf, basic, hra)

    t_salary = basic + hra - pf
    new_employee = [emp_prof, emp_q, emp_s, t_salary]
    emp_list.append(new_employee)
print()
print("Name\tAge\tDob\tDegree\tExp\tBasic\tHRA\tPF\tSalary")
print('-'*75)
for emp in emp_list:
    print(emp[0].name, emp[0].age, emp[0].dob, emp[1].degree, emp[1].experience,
emp[2].basicpay, emp[2].HRA, emp[2].PF, emp[3], sep='\t')
```

pacakge/Account/salary.py:

```
class Salary:
    def __init__(self, PF, basicpay, HRA):
        self.PF = PF
        self.basicpay = basicpay
        self.HRA = HRA
```

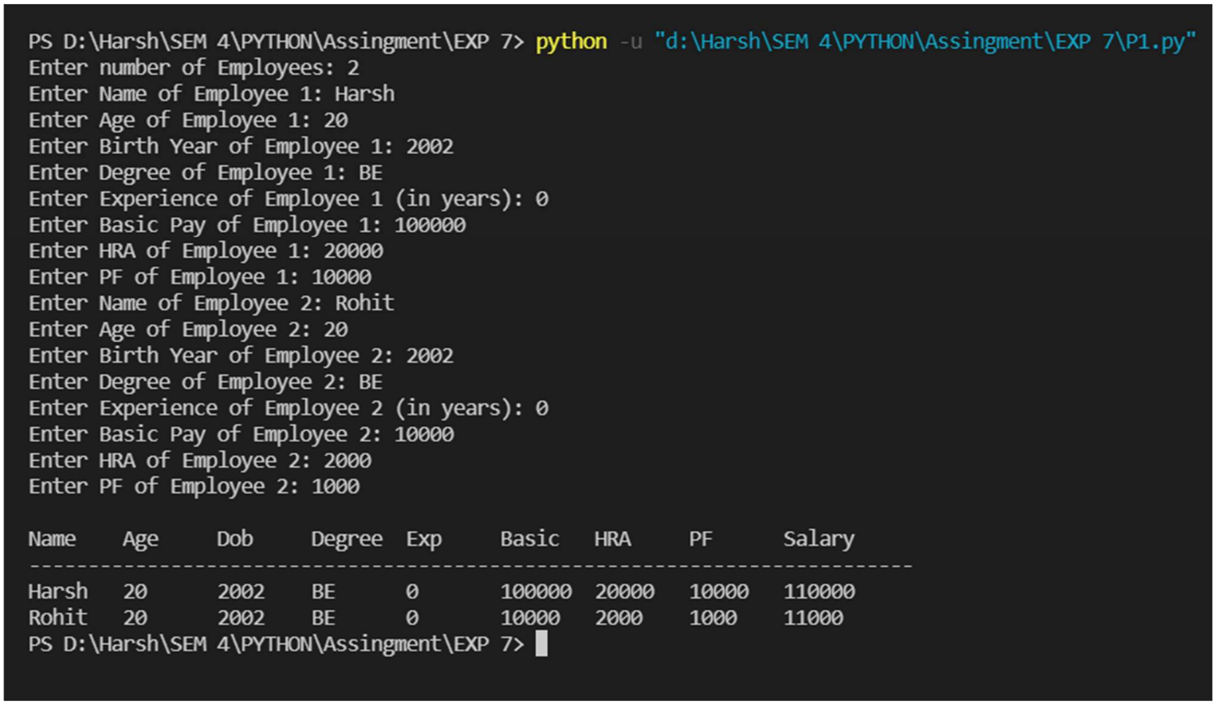
pacakge/Employee/profile.py:

```
class Profile:
    def __init__(self, name, age, dob):
        self.name = name
        self.age = age
        self.dob = dob
```

package/Employee/Qualification.py:

```
class Qualification:
    def __init__(self, degree, experience):
        self.degree = degree
        self.experience = experience
```

OUTPUT



```
PS D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7> python -u "d:\Harsh\SEM 4\PYTHON\Assingment\EXP 7\P1.py"
Enter number of Employees: 2
Enter Name of Employee 1: Harsh
Enter Age of Employee 1: 20
Enter Birth Year of Employee 1: 2002
Enter Degree of Employee 1: BE
Enter Experience of Employee 1 (in years): 0
Enter Basic Pay of Employee 1: 100000
Enter HRA of Employee 1: 20000
Enter PF of Employee 1: 10000
Enter Name of Employee 2: Rohit
Enter Age of Employee 2: 20
Enter Birth Year of Employee 2: 2002
Enter Degree of Employee 2: BE
Enter Experience of Employee 2 (in years): 0
Enter Basic Pay of Employee 2: 10000
Enter HRA of Employee 2: 2000
Enter PF of Employee 2: 1000

Name    Age     Dob     Degree  Exp     Basic   HRA     PF      Salary
---------------------------------------------------------------------------
Harsh   20      2002    BE      0       100000  20000   10000   110000
Rohit   20      2002    BE      0       10000   2000    1000    11000
PS D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7>
```

Q2.

2.	Python program to ● create directories using mkdir( ) and makedirs ( ) ● remove directories using rmdir( ) and removedirs( ) ● change current directory

The OS module in Python provides functions for interacting with the operating system. OS comes under Python's standard utility modules. This module provides a portable way of using operating system-dependent functionality.

os.mkdir() method in Python is used to create a directory named path with the specified numeric mode. This method raise FileExistsError if the directory to be created already exists.

os.makedirs() method in Python is used to create a directory recursively. That means while making leaf directory if any intermediate-level directory is missing, os.makedirs() method will create them all.

os.rmdir() method in Python is used to remove or delete a empty directory. OSError will be raised if the specified path is not an empty directory.

os.removedirs(): method in Python is used to remove directories recursively. If the leaf directory in the specified path is successfully removed, then os.removedirs() tries to successively remove every parent directory mentioned in path until an error is raised.

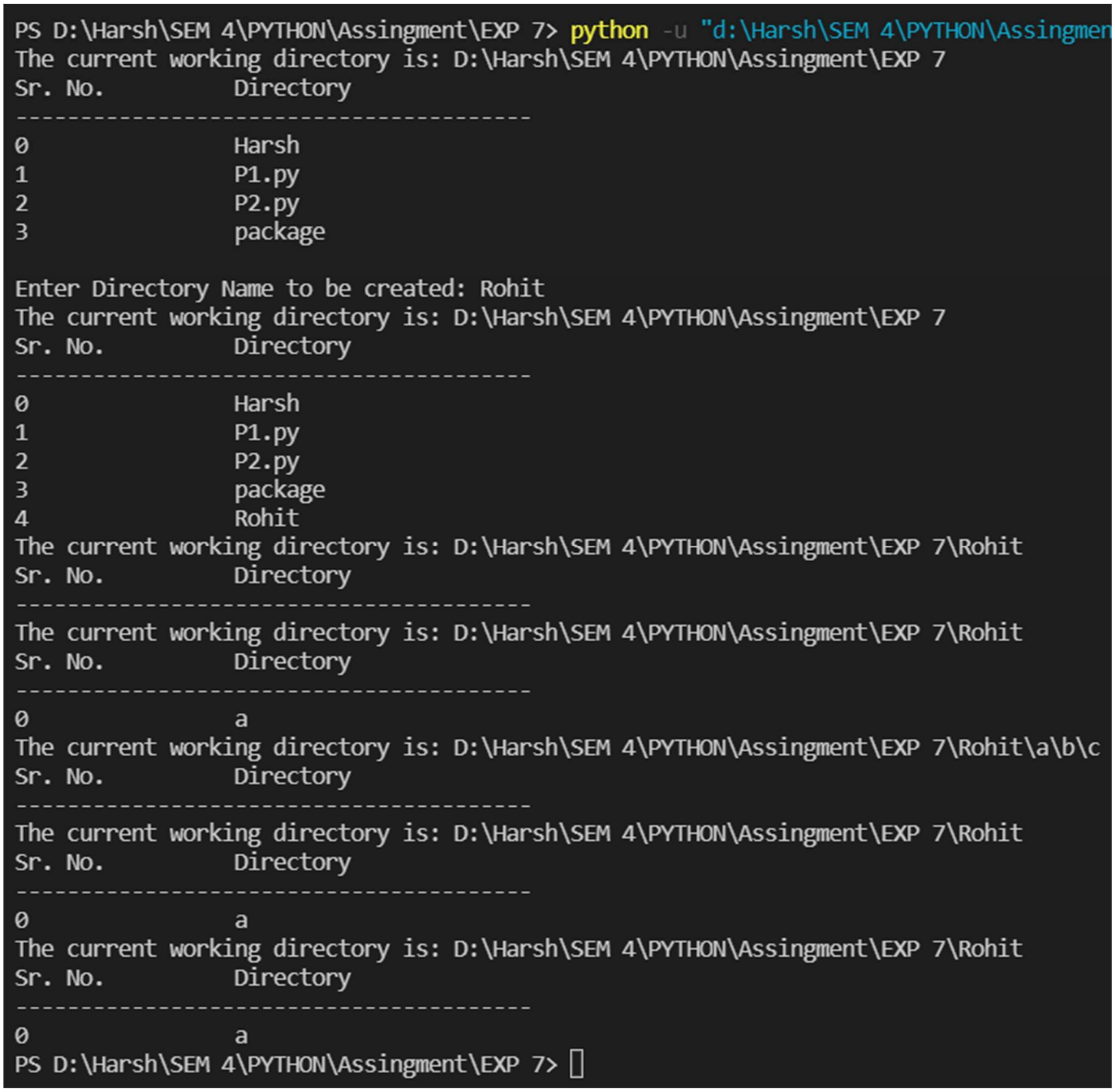
os.chdir() method in Python used to change the current working directory to specified path. It takes only a single argument as new directory path.

CODE

```
import os
def print_directories(directory_list):
    i=0
    print("Sr. No. \t Directory")
    print("-" * 40)
    for directory in directory_list:
        print(i, "\t\t", directory)
        i += 1
def print_directory_path_and_content(path):
    print("The current working directory is:", path)
    # Directories present in a specific path
    print_directories(os.listdir(path))

# Print Current
path = os.getcwd()
print_directory_path_and_content(path)
# Make Directory using mkdir
directory_name = input("\nEnter Directory Name to be created: ")
os.mkdir(os.path.join(path, directory_name))
# Print after creating Directories
print_directory_path_and_content(os.getcwd())
# Change Directory to the created one
os.chdir(directory_name)
# Print after changing Directories
print_directory_path_and_content(os.getcwd())
path = os.getcwd()
# Make Directory using makedirs
path += r"/a/b/c"
os.makedirs(path)
# Print after creating Directories
print_directory_path_and_content(os.getcwd())
# Change Directory to the created one
os.chdir(r"a/b/c")
# Print after changing Directories
print_directory_path_and_content(os.getcwd())
os.chdir(r"../../..")
# Print after changing Directories
print_directory_path_and_content(os.getcwd())
path = os.getcwd()
path += r"/a/b/c"
# Remove directory
os.rmdir(path)
# Print after changing Directories
print_directory_path_and_content(os.getcwd())
```

OUTPUT



```
PS D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7> python -u "d:\Harsh\SEM 4\PYTHON\Assingmen
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7
Sr. No.          Directory
----------------------------------------
0                Harsh
1                P1.py
2                P2.py
3                package

Enter Directory Name to be created: Rohit
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7
Sr. No.          Directory
----------------------------------------
0                Harsh
1                P1.py
2                P2.py
3                package
4                Rohit
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7\Rohit
Sr. No.          Directory
----------------------------------------
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7\Rohit
Sr. No.          Directory
----------------------------------------
0                a
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7\Rohit\a\b\c
Sr. No.          Directory
----------------------------------------
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7\Rohit
Sr. No.          Directory
----------------------------------------
0                a
The current working directory is: D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7\Rohit
Sr. No.          Directory
----------------------------------------
0                a
PS D:\Harsh\SEM 4\PYTHON\Assingment\EXP 7> 
```