**Name of the Student: -**

**Gr. No: - Roll No: - A. Y: - 2024-25 Sem:-II**

**Experiment No: 2**

**Laboratory Experiments on Data Types and Data Objects**

**Exercise 1:**

1. Assume s=2 and p=2L. Find the class of s and p . Then convert value of s to integer and save it in q. Check the class of q now.
2. If you have taken b=4/3 what will be the output when you run following commands:
3. as.integer(b)
4. class(b)
5. as.numeric(b)
6. Use is.integer and is.numeric command for b and state what is the output of both the commands.

3. Assign 1 to variable x and 2 to variable y. Then define z=x>y. Print the value of z. What is the class of z?

4. Store the string “My SGPA “in variable x, “for last semester is” in variable y and 9.12 in variable z. Now, Print the statement “My SGPA for last semester is 9.12”.

**Exercise 2:**

1. Create a vector of numbers 1, 4, 7, 10, 13… 37 by using seq() function.
2. Create a vector of numbers 5 repeated 10 times by using rep() function.
3. Suppose that x and y are two vector containing elements 1, 5, 2 and 3, 7, 9 respectively
4. Augment x by adding y to the left
5. Augment y by adding elements 4, 3, 2 at end
6. Print the maximum value of Y and minimum value of x
7. Create a vector x with elements 1, 5, 2, 3, 7, 6, 8 and create vectors y, z, w from x using

y = x2, z = 1/x, w = log10x

1. Suppose age is a vector containing ages of 10 persons as 22, 27, 31, 41, 30, 25, 19, 20, 23, 35
2. Access age of fourth person
3. Create a vector age30 with age of person > 30
4. Access age of last 3 person
5. Find number of elements in vector age
6. Access ages of persons except 5th and 7th
7. Create a vector age2 with age of persons between 20 and 25

**Exercise 3:**

1. Create a list named ls. The list ls contains following 6 vectors with their values as follows :

Rollno- 1:4

First name- Ravi,Om,Ajay,Shiv

Last name-Dev,Gandhi,Pande,Rao

Subject-AE,DS,ML,OS

Marks-35,40,38,02

Result –P,P,P,F.

**Task To be performed:**

1. Print the list ls.
2. Print all the independent element of list ls.
3. Find the class of element of the list.
4. What will be the output of the following commands:

What will be the output for

1. Print(ls[[2]][1])
2. print(ls[[4]][4])
3. print(ls[5])
4. It was found that the marks of Ajay were entered wrongly. The correct marks should be 45. Replace the marks of Ajay without disturbing the other elements or without loading the complete list again.
5. Change the subject name of OS to OE. Modify the required element only.
6. It was decided that the data base should also have native place information. Ravi stays at Pune, Ajay at Mumbai, Shiv at Nashik and Om at Nagpur. Please add this information also in the list.

Add one more student information names Julie Gommes. The marks obtained by Julie in subject DS is 30 and the result is P. Her native place is Hyderabad.

**Exercise 4:**

1. Create the list x which contain numeric vector n(2,3,5), a character vector s(“aa”,”bb”,”cc”,”dd) , and logical vector b(T,F,T,F), and numeric value 3. Perform the following task:

1.From the list print s vector values by list slicing.

2.From the list find s vector values, and numeric value 3, with the help of index vector by list slicing

3. From the list find s vector values by member access

4. Modify s vector value replacing “aa” by “tt” and again find s

**Exercise 5:**

1. Create the matrix A and B with values as shown below:

A= and B=

Use a) function matrix b) function cbind c)function rbind. Perform the following task:

1. What is the largest number present in the matrix A and smallest number in matrix B
2. Extract the 2nd row and 3rd column element of matrix A and save it in variable c.
3. Extract row number 4 of matrix B and save it in vector D.
4. Which is the largest number present in the last column of matrix B
5. Display the transpose of matrix A and inverse of matrix B

**Exercise 6:**

Consider the following data from website ESPN cricinfo live

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Matches | Innings | Highestscore | average |
| Tendulakar | 200 | 329 | 248 | 53.78 |
| Ponting | 168 | 287 | 257 | 51.85 |
| Kallis | 166 | 280 | 224 | 55.37 |
| Dravid | 164 | 286 | 270 | 52.31 |
| Cook | 161 | 291 | 294 | 45.35 |

1. What is the highest score of Tendulkar?

2. Display the name and the average of the player who is having maximum highest score

3.Display the name, matches, innings and average of the players having score above 250.

4.Find the row number of the data for which the highest score is equal or greater than 270

5. Modify Tendulkar’s number of matches as 201.

**Conclusion: -**