OPERATORS CASES

**Case Study**: Consider a student, Michael who got the result of his last semester. To know about his performance, he just tried to calculate his scores. Help Mani to satisfy his curiosity. Note that there were five theoretical subjects in his last semester and each subject was evaluated for 100. Also, there were 3 practical subjects which were evaluated for 50 marks each. Note that out of the 5 theory subjects, 2 had 2 credits, 2 had 3 credits and 1 had 4 credit. All the practical subjects had 1 credit each.

i. What is the total percentage that he has scored?

ii. GPA of his current semester.

iii. How much score he was behind in maintaining his current CGPA?

iv. In which subject, Mani was conceptually good, such that he got maximum scores in it?

v. Mani was conceptually weak in one subject; he managed to get just pass grade in it. Find that subject.

**Case Study**: Suppose you want to deposit a certain amount of money into a savings account and then leave it alone to draw interest for the next 10 years. At the end of 10 years you would like to have Rs.100,00,000 in the account. How much do you need to deposit today to make that happen? You can use the following formula to find out:

**NOTE:** P=F/(1+r)n

The terms in the formula are as follows:

• P is the amount that you need to deposit today.

• F is the final value that you want in the account. (In this case, F is Rs.100,00,000.)

• r is the annual interest rate.

• n is the number of years that you plan to let the money sit in the account.

It would be convenient to write a computer program to perform the calculation because then we can experiment with different values for the variables.

**Case Study**: The date June 10, 1960, is special because when it was wrote in the following format, the month times the day equals the year: 6/10/60 Design a program that asks the user to enter a month (in numeric form), a day, and a two- digit year. The program should then determine whether the month times the day equals the year. If so, it should display a message saying the date is magic. Otherwise, it should display a message saying the date is not magic.

Case Study-1: A person named Sam bought two first class tickets to watch a movie in multiplex theatre. Currently, he is standing along with his friend outside the 1st class door. So, help him to watch the movie only if he has the 1st class ticket.

Case Study-2: Helena was so hungry after finishing her throw ball tournament. She likes only pizza and burger. Help her to find a restaurant which has both pizza and burger among the available 5 restaurants in the neighborhood.

b. Overview of “if…else”.

Case Study-3: There is a temple in Amritsar. A person is about to enter the temple. He is carrying some lemons with him, which should be equally shared among the 7 priests, who are standing near the temple door. If the lemons can’t be equally shared, then the person needs to walk 3 km from the temple to get the additional number of lemons to make it equal. So, in the 2nd case, help him to find the number of lemons he needs to give the priests.

Hint: He will be allowed to enter the temple only when the lemons are equally shared among the priest. Help him to see the god for his prayers.

Case Study-4: Neeral has to reach her college within 1 hr. that is 50 km away from her home. Now, the time is 8 am and 9 am is the time by which she has to be inside the college. She will be permitted into the college only when she arrives on or before 9 am. Neeral with her bike is now ready to start the drive; help her with the average speed that is to be maintained so that she reaches on time.

c. Overview of “if...else...if”. (ELIF)

Case Study-5: Nearly 100-110 college students are lined in a queue to get tickets for a dance show on a particular evening in their college. Among the students, there is a person named Aram standing along with his friends. His parents are waiting outside in the car to get the ticket from Aram. Help them to know the status of Aram with the following cases.

i. If he stands in the middle, give them a message stating ‘he is standing in the middle of the queue’.

ii. If the number of students standing before him is less than the number of students ahead of him, tell them current the position of Aram from the first.

iii. If the number of students behind him is less than the number of students ahead of him, tell them the position of Aram from the last.

iv. If he stands beyond the 100th position, give a message stating that ‘he won’t be able get the ticket’.

**Hint:** Try to get the position of Aram dynamically.