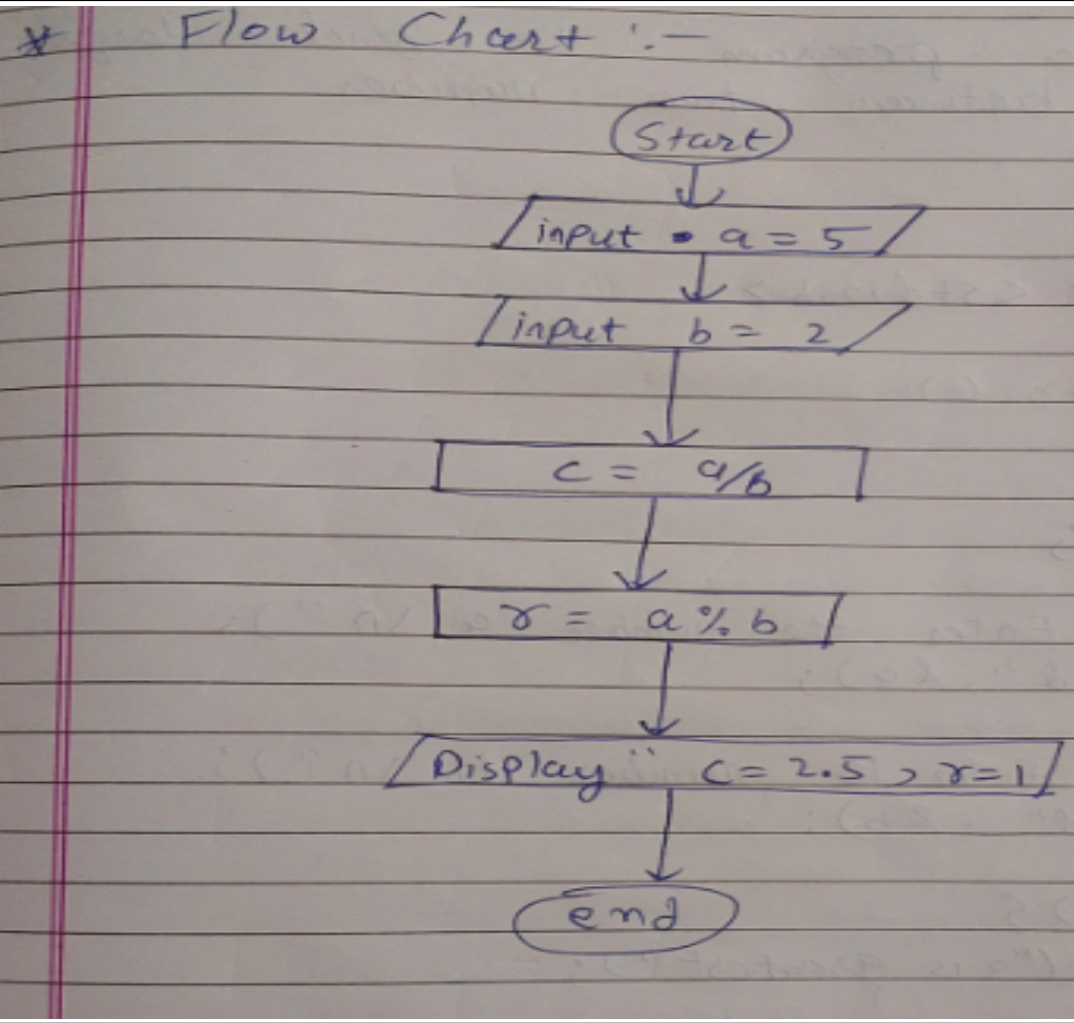


| Semester       | Course Code | Course Title                             |
|----------------|-------------|--|
| Autumn 2024-25 | IT101       | Computer Programming and Problem Solving |

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| As.No.   | 3   |
| Assessment Title.  | Introducing control statements (if-else, while) |
| Date of Submission   | 19-Sept-2024                                    |

1. Write a program to find the division (Overall division  $5/2 = 2.5$ ) and modulo division (as discussed in class).
2. Write a program to find the largest number between two numbers.
3. Write a program to find the largest number among three numbers.
4. Write a program to determine if the entered year is a leap year or not.
5. Write a program to display numbers from 0 to n, where n is input by the user.
6. Write a program to display even and odd numbers between 0 and n, where n is input by the user.
7. Write a program to print the multiplication table of any number.
8. Write a program to find how many numbers divisible by 3 exist in the first n numbers, where n is input by the user.

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| <b>Question 1</b>                 | Write a program to find the division (Overall division $5/2 = 2.5$ ) and modulo division (as discussed in class).  |
| <b>Flow chart</b>                 |  <pre> graph TD     Start([Start]) --&gt; InputA[/input a = 5/]     InputA --&gt; InputB[/input b = 2/]     InputB --&gt; ProcessC[c = a/b]     ProcessC --&gt; ProcessR[r = a % b]     ProcessR --&gt; Display[/Display: c = 2.5, r = 1/]     Display --&gt; End([end])       </pre> |
| <b>Program or Related Content</b> | <pre> #include &lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.: 202411024  void main(){      int a,b,c;      float c;     printf("Enter value of a:\n");     scanf("%d",&amp;a);     printf("Enter value of b:\n");     scanf("%d",&amp;b);     c = (float)a/b;     printf("Division fo Two no is %.2f\nModulo Division of Two no is %d\n",c,(a%b));  }       </pre>   |
| <b>Output:</b>                    | <pre> Enter value of a: 5 Enter value of b: 2 Division fo Two no is 2.50 Modulo Division of Two no is 1       </pre>   |

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| <b>Your Observation</b> | “/” operator is used to divide two number<br>“%” operator is used to find the remainder of number |
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| <b>Question 2</b>                 | Write a program to find the largest number between two numbers.   |
| <b>Flow chart</b>                 | <p>Flow Chart :-</p> <pre> graph TD     Start([Start]) --&gt; InputA[/input a/]     InputA --&gt; InputB[/input b/]     InputB --&gt; Decision{a &gt; b}     Decision -- True --&gt; DisplayA[/Display a is largest/]     Decision -- False --&gt; DisplayB[/Display b is largest/]     DisplayA --&gt; End([End])     DisplayB --&gt; End   </pre> |
| <b>Program or Related Content</b> | <pre> #include &lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.: 202411024  void main(){      int a,b;     printf("Enter value of a:\n");     scanf("%d",&amp;a);     printf("Enter Value of b:\n");     scanf("%d",&amp;b);      if(a&gt;b){         printf("a is biggest\n");     }     else{         printf("b is biggest\n");     }  } </pre>  |

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| <b>Output:</b>          | Enter value of first no:<br>69<br>Enter Value of Second no:<br>36<br>a is biggest |
| <b>Your Observation</b> | Here we gave value to two number and check which is greater                       |

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| <b>Question 3</b>                 | Write a program to find the largest number among three numbers.  |
| <b>Flow chart</b>                 | <p>Flow Chart :-</p> <pre> graph TD     Start([Start]) --&gt; InputA[/input a/]     InputA --&gt; InputB[/input b/]     InputB --&gt; InputC[/input c/]     InputC --&gt; Dec1{a &gt; b &amp; a &gt; c}     Dec1 -- True --&gt; DisplayA[/Display "a is greatest"/]     Dec1 -- False --&gt; Dec2{b &gt; a &amp; b &gt; c}     Dec2 -- True --&gt; DisplayB[/Display "b is greatest"/]     Dec2 -- False --&gt; DisplayC[/Display "c is largest"/]     DisplayA --&gt; End([End])     DisplayB --&gt; End     DisplayC --&gt; End   </pre> |
| <b>Program or Related Content</b> | <pre>#include &lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.: 202411024  Void main() {     int a,b,c;      printf("enter value of a\n");     scanf("%d",&amp;a);      printf("enter value of b\n");     scanf("%d",&amp;b);      printf("enter value of c\n");</pre>  |

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|                         | <pre>scanf("%d",&amp;c);  if((a&gt;b) &amp;&amp; (a&gt;c)) { printf("a is the largest num\n"); } else if((b&gt;a) &amp;&amp; (b&gt;c)) { printf("b is the largest num\n"); } else { printf("c is the largest num\n"); } printf("code is completed");  }</pre> |
| <b>Output:</b>          | <pre>enter value of a 16 enter value of b 69 enter value of c 86 c is the largest num code is completed</pre>   |
| <b>Your Observation</b> | Here we gave value to three number and check which is greater   |



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| <b>Question 4</b>                 | Write a program to determine if the entered year is a leap year or not.   |
| <b>Flow chart</b>                 | <p>Flow Chart:-</p> <pre> graph TD     Start([Start]) --&gt; Input[/Take value from user(a)/]     Input --&gt; Decision{if<br/>"a%4==0<br/>&amp;&amp; a%100!=0<br/>   a%400==0"}     Decision -- True --&gt; Output1[/Display "a is leap year"/]     Decision -- False --&gt; Output2[/Display "a is not leap year"/]     Output1 --&gt; End([End])     Output2 --&gt; End   </pre> |
| <b>Program or Related Content</b> | <pre> #include&lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.: 202411024  Void main() {     int a;     printf("enter a year witch you want to chek\n");     scanf("%d",&amp;a);      if((a%4==0 &amp;&amp; a%100 != 0)    a%400==0){         printf("entered year is leap year");     }     else {printf("entered year is not leap year");} }   </pre>                            |

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| <b>Output:</b>              | enter a year witch you want to chek<br>2024<br>entered year is leap year   |
| <b>Your<br/>Observation</b> | Here we gave value to check the entered value is leap year or not<br>We use “AND” and “OR” operator to calculate leap year |

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| <b>Question 5</b>                 | Write a program to display numbers from 0 to n, where n is input by the user.  |
| <b>Flow chart</b>                 | <p>Flow Chart :-</p> <pre> graph TD     Start([Start]) --&gt; Input[/take value from user "n"/]     Input --&gt; Decision{while(i&lt;n)}     Decision -- yes --&gt; Display[/Display "i"/]     Display --&gt; Increment[i = i + 1]     Increment --&gt; Decision     Decision -- no --&gt; End([End]) </pre> |
| <b>Program or Related Content</b> | <pre>#include &lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.: 202411024  void main(){     int n, i=0;     printf("Enter Value of n:\n");     scanf("%d",&amp;n);      while(i&lt;=n){         printf("%d\t",i);         i = i+1;     } }</pre>  |
| <b>Output:</b>                    | Enter Value of n:<br>6<br>0 1 2 3 4 5 6  |
| <b>Your Observation</b>           | We use while loop to print the number from 0 to number given by the user   |



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| <b>Question 6</b>                 | Write a program to display even and odd numbers between 0 and n, where n is input by the user.   |
| <b>Flow chart</b>                 | <p>Flow chart :-</p> <pre> graph TD     Start([Start]) --&gt; TakeN[/Take value "n"/]     TakeN --&gt; While1{i &lt;= n}     While1 -- Yes --&gt; Div2{i % 2 == 0}     Div2 -- True --&gt; Even[i is even Display]     Div2 -- False --&gt; Div2Not0{i % 2 != 0}     Div2Not0 -- True --&gt; Odd[i is odd Display]     Even --&gt; End([End])     Odd --&gt; End     While1 -- No --&gt; End   </pre>                              |
| <b>Program or Related Content</b> | <pre> #include &lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.: 202411024  void main(){     int n,i=0,o;     printf("Enter value of n:\n");     scanf("%d",&amp;n);      while(i&lt;=n){         if((i%2)==0){             printf("%d is even ",i);             i=i+1;          }      }      i=0;      while(i&lt;=n){         if((i%2)!=0){             printf("%d is odd ",i);             i=i+1;          }      }  } </pre> |

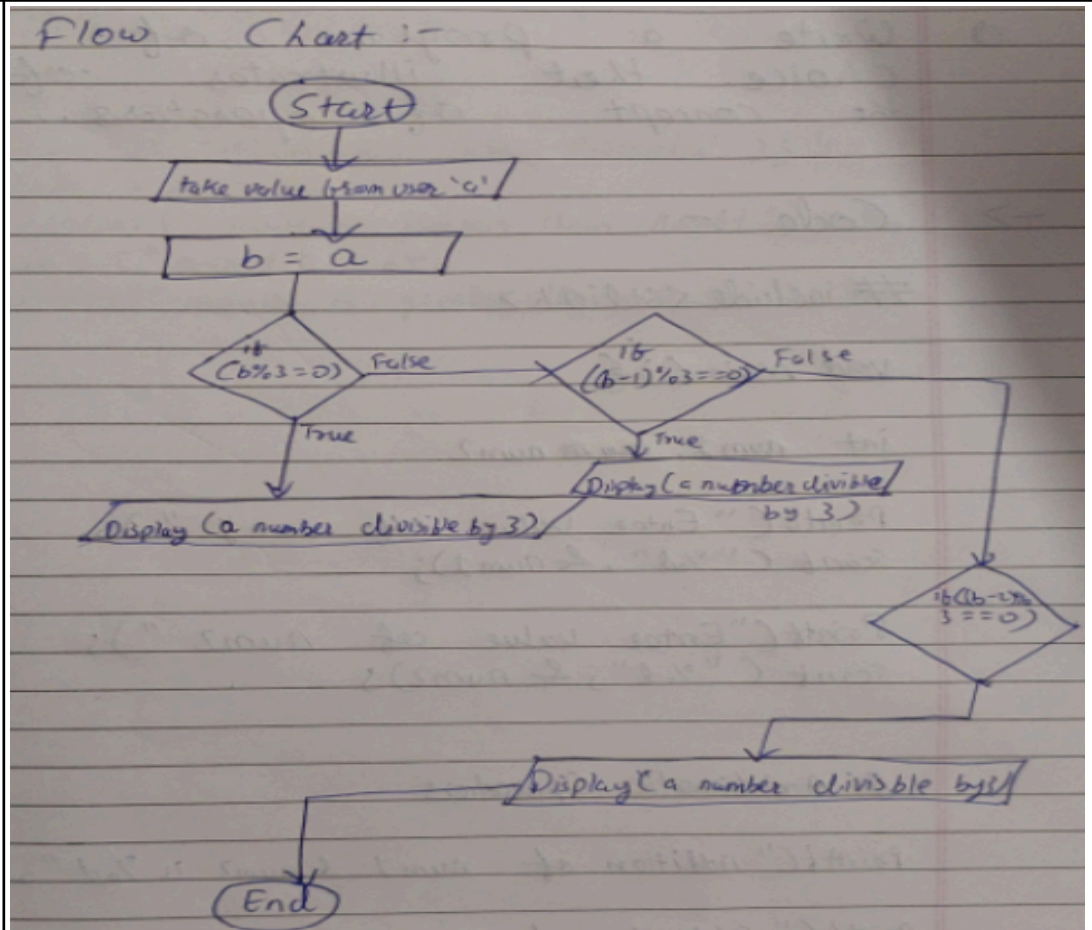
|                         |  |
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| <b>Output:</b>          | Enter Value of N:<br>6<br>Even NO:<br>0, 2, 4, 6<br>Odd No:<br>1, 3, 5                   |
| <b>Your Observation</b> | We gave the number n and display from 0 to n and print whether the number is odd or even |

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| <b>Question 7</b>                 | Write a program to print the multiplication table of any number.  |
| <b>Flow chart</b>                 | <p>Flow Chart :-</p> <pre> graph TD     Start([Start]) --&gt; Input[/take value from user a/]     Input --&gt; Init[b = 1]     Init --&gt; Decision{while(b &lt;= 10)}     Decision -- yes --&gt; Increment[b = b + 1]     Increment --&gt; Display[/Display(a * b)/]     Display --&gt; Decision     Decision -- no --&gt; End([End])   </pre> |
| <b>Program or Related Content</b> | <pre> #include &lt;stdio.h&gt;  Name: Rajveer Chaudhari Roll no.:202411024  void main() {     int a, i=0;     printf("enter a number to print a multiplicative table\n");     scanf("%d",&amp;a);      while(i&lt;=10){         printf("%d X %d =%d\n",a,i,a*i);         i=i+1;     } } </pre>  |

|                         |  |
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| <b>Output:</b>          | <p>enter a number to print a multiplicative table</p> <p>9</p> <p>9 X 1 = 9</p> <p>9 X 2 = 18</p> <p>9 X 3 = 27</p> <p>9 X 4 = 36</p> <p>9 X 5 = 45</p> <p>9 X 6 = 54</p> <p>9 X 7 = 63</p> <p>9 X 8 = 72</p> <p>9 X 9 = 81</p> <p>9 X 10 = 90</p> |
| <b>Your Observation</b> | We gave a number to print a multiplication table of a given number   |

**Question 8**

Write a program to find how many numbers divisible by 3 exist in the first n numbers, where n is input by the user.

**Flow chart****Program or Related Content**

```
#include <stdio.h>
```

Name: Rajveer Chaudhari

Roll no.: 202411024

```
void main(){
    int n, a, b=0, i=0;
    printf("Enter Value of n to check number of multiple from zero to n:\n");
    scanf("%d",&n);
    b=n
    if(b%3==0){
printf("number of multiple is %d", b/3);
    }

    if((b-1)%3==0){
printf("number of multiple is %d", (b-1)/3);
    }
    if((b-2)%3==0){
printf("number of multiple is %d", (b-2)/3);
    }

}
```

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| <b>Output:</b>              | Enter Value of n:<br>34<br>Total Numbers which can be divided by 3 is: 11       |
| <b>Your<br/>Observation</b> | We take value from user and display the number of multiple of 0 to given number |