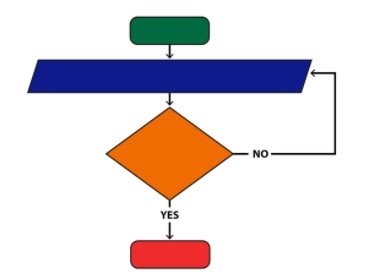
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| --- | --- |
|  | **Lab 03** |
| **Topic** | **Flowcharts/ Algorithms.** |
| **Objective** | * Application of flowcharts. * Use of algorithms. |

**Tools:**

MS Word

**Note:**

1. Edit this document and write your answers under tasks statement for example: Task1: Make a flowchart of taking input. Answer:



1. Use MS Word for making flowcharts by going to *Insert* tab and selecting *Shapes*. You can find your required symbols under *Flowchart* section in *Shapes* box. 3. Use step numbers when writing algorithms e.g

Step1:

Step2:

# Flowchart

**Flowchart** is **a graphical representation** of an algorithm. Programmers often use it as a programplanning tool to solve a problem. It makes use of symbols which are connected among them to indicate the flow of information and processing. The process of drawing a flowchart for an algorithm is known as “**flowcharting**”.

**Task1: Draw a flowchart that makes a decision if you can vote based on age 18 and displays if one can or cannot vote.**

**Task2: Draw a flowchart to find the largest of three numbers.**

**Task3: Draw a flowchart to find the area of a circle by taking radius as input and displays the final output.**

# Algorithms

An **algorithm** can be defined as “a process that performs some finite **sequence of steps** in order to solve a given **problem**”. Algorithms are used for calculation, data processing, and many other fields.

**Benefits of using Algorithms:**

* The development of the procedure itself becomes easier, which involves identification of the processes, major decision points, and variables necessary to solve the problem.
* Identification of the processes and decision points reduces the task into a series of smaller steps of more manageable size. Problems that would be difficult or impossible to solve as a whole can be approached as a series of small, solvable sub-problems.
* A final benefit of the use of an algorithm comes from the improvement it makes possible. If the problem solver does not know what was done, he or she will not know what was done wrong.

**Task1: Write an algorithm to compute the sum of the squares of integers from 1 to 50.**

**Task2: Write an algorithm to insert a table in MS Word and input values in it.**

**Task1: Draw a flowchart that makes a decision if you can vote based on age 18 and displays if one can or cannot vote.**

**Enter your age**

**Age >=18**

**You can cast a vote**

**You can’t cast a vote**

YES

NO

**Task2: Draw a flowchart to find the largest of three numbers.**

**Input A,B,C**

**If A>B**

**If A>C**

**If B>C**

**Print A**

**Print C**

**Print B**

NO

YES

NO

NO

YES

YES

**Task3: Draw a flowchart to find the area of a circle by taking radius as input and displays the final output.**

**Input radius “r” of circle**

**Calculate AREA = (3.14) r\*r**

**Print AREA of circle**

**TASK 1**

**Write an algorithm to compute the sum of the squares of integers from 1 to 50**

1. **Start**
2. **Create two integers “i” and “sum”**
3. **Set i = 1 and sum = 0**
4. **Verify value of i**
   1. **If i <= 50** 
      1. **Sum = sum + (i\*i)**
      2. **Increase value of i by 1**
      3. **Go to step 4**
   2. **Else**
      1. **Print “sum”**
5. **End**

**TASK 2**

**Write an algorithm to insert a table in MS Word and input values in it.**

**Step 1: Start**

**Step 2: Open MS Word**

**Step 3: Select New Document**

**Step 4: Go to insert tab**

**Step 5: Click on Table**

**Step 6: Select the number of rows and column you need**

**Step 7: You can add input values in the table by selecting the corresponding cell of the table**

**Step 8: Save your document by pressing Ctrl + S**

**Step 9: Close MS Word**

**Step 10: End**