



# *CSE- 321*

# *Software Engineering*

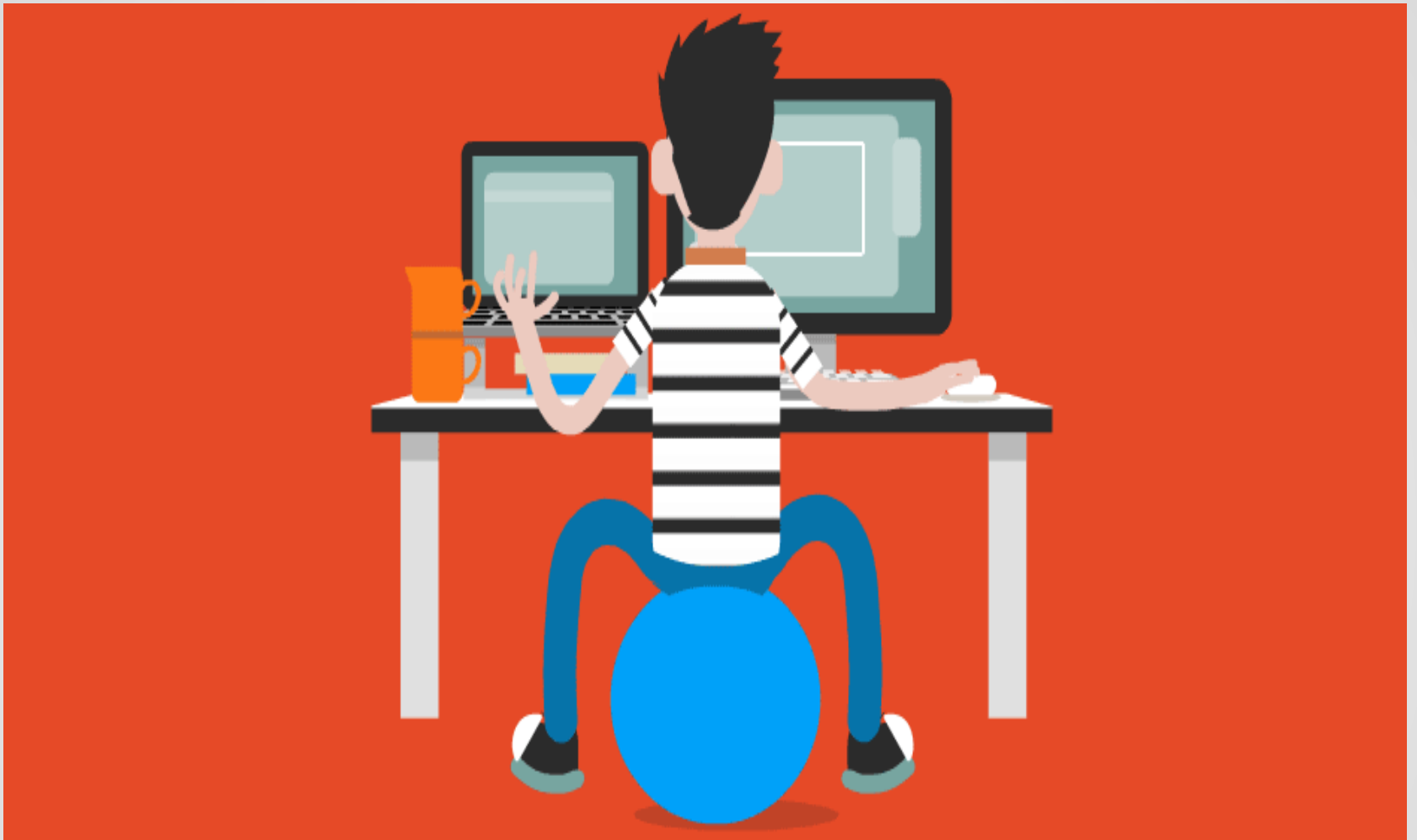
Lecture : 02

**Introduction**

**Fahad Ahmed**

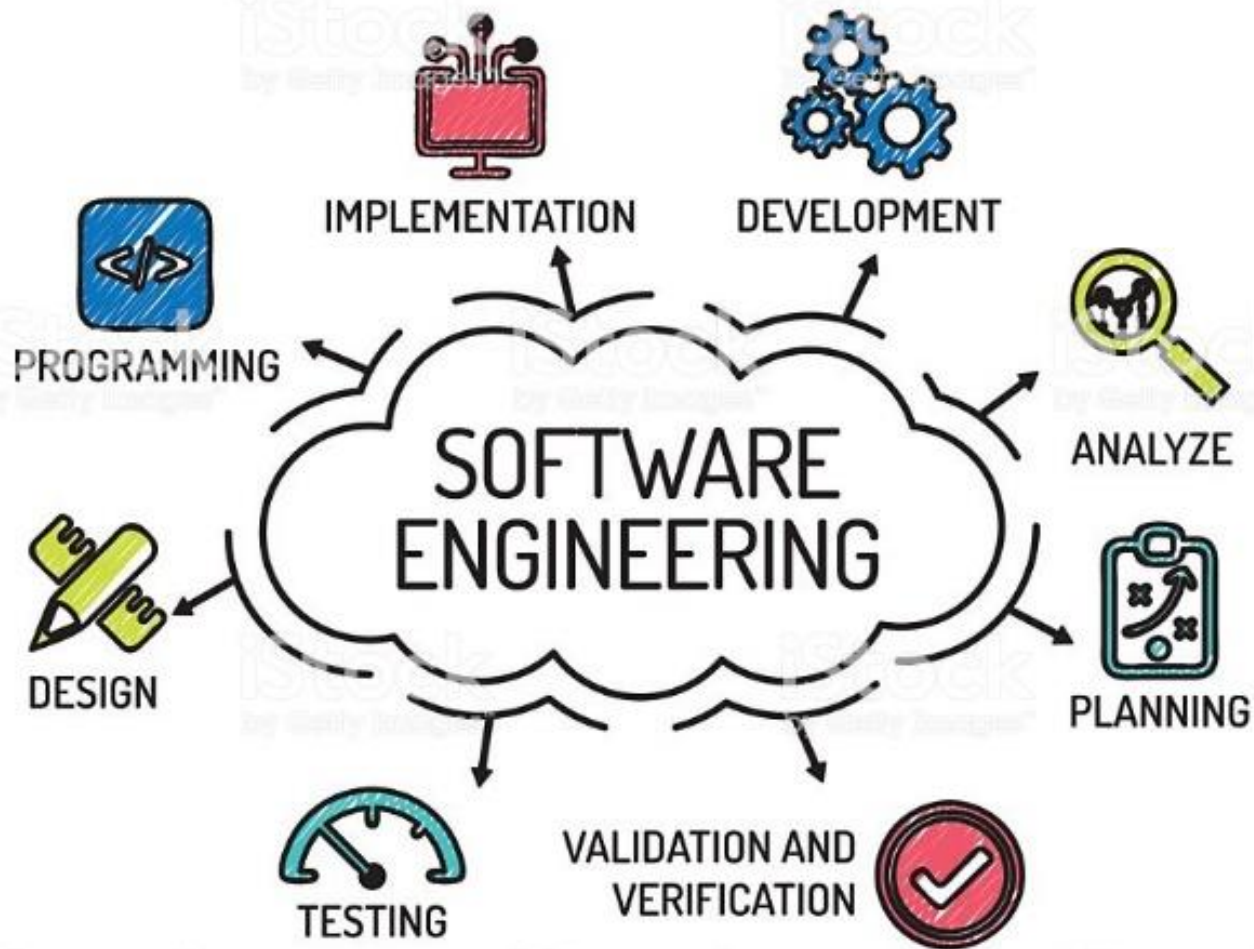
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**Are you a software Engineer ?**

# Software Engineering



# Lecture Outlines

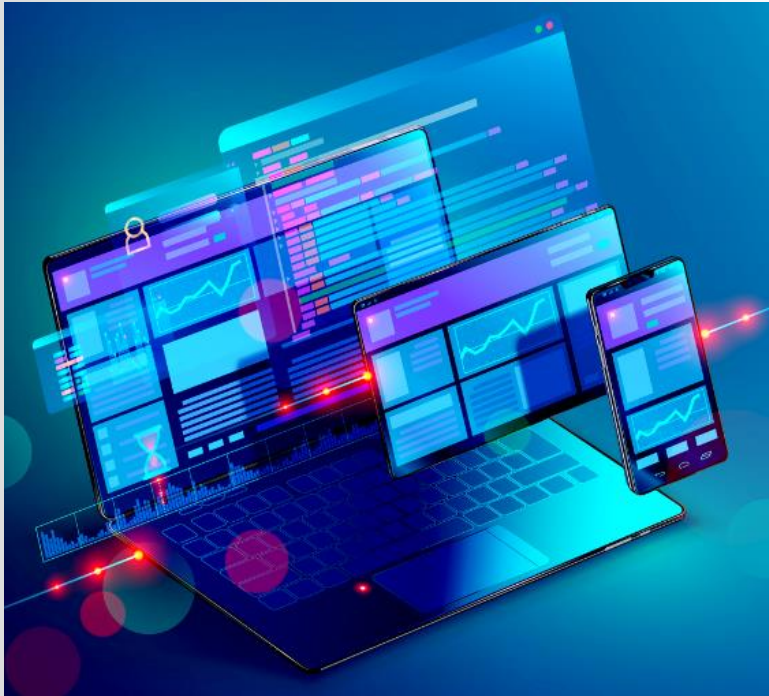
- ❖ What is Software?
- ❖ Attributes of Good Software
- ❖ Software Market – Industry Trends and Forecast
- ❖ Classification of Software
- ❖ What is Software Engineering?
- ❖ Importance of Software Engineering
- ❖ Program vs Software Product
- ❖ Software Engineering vs System Engineering
- ❖ Software Process
- ❖ Software Process Model
- ❖ Key Challenges Facing Software Engineering
- ❖ Software Engineering Ethics



# What is Software Engineering ?

# Software Engineering

## Software



**Product**



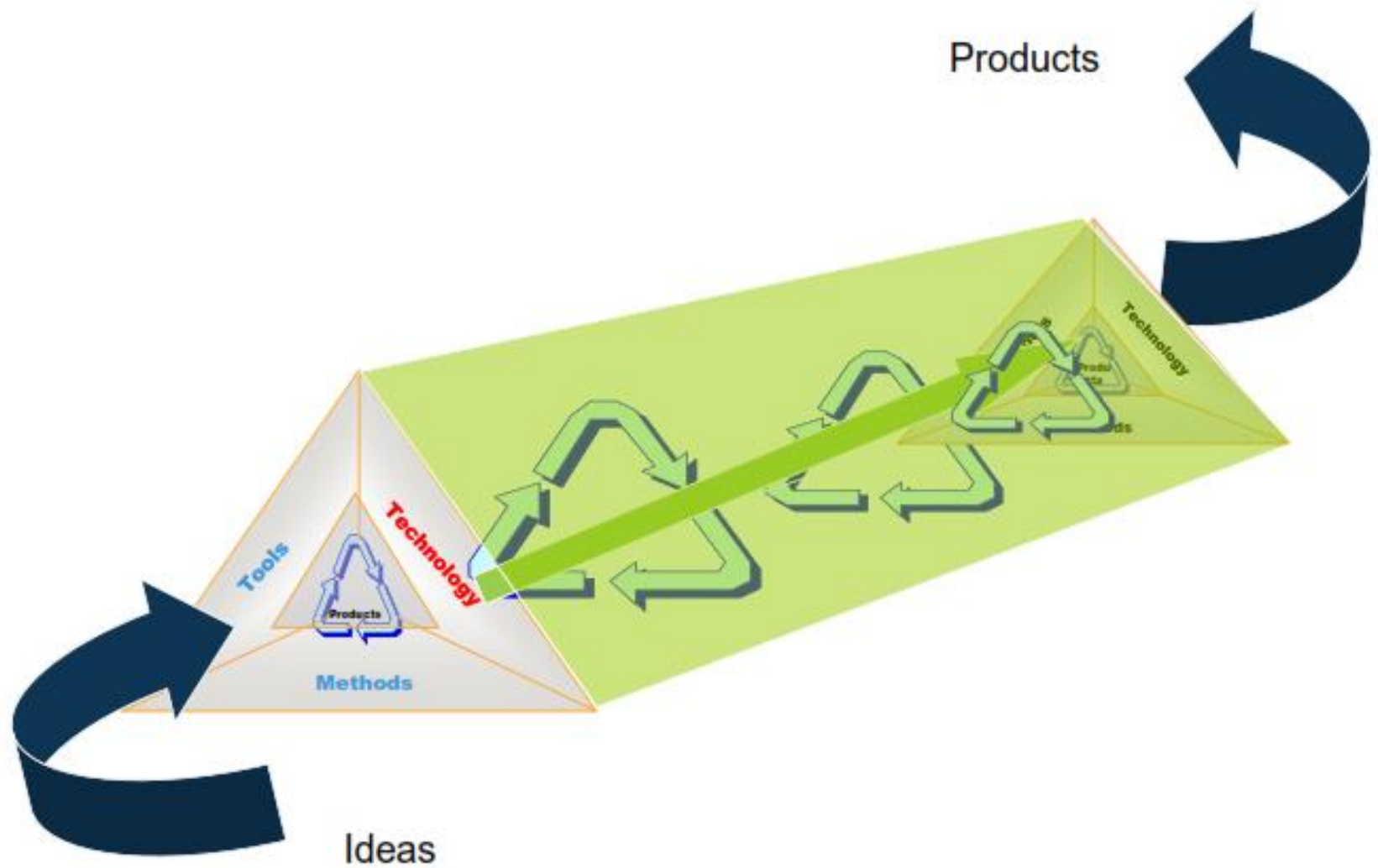
## Engineering



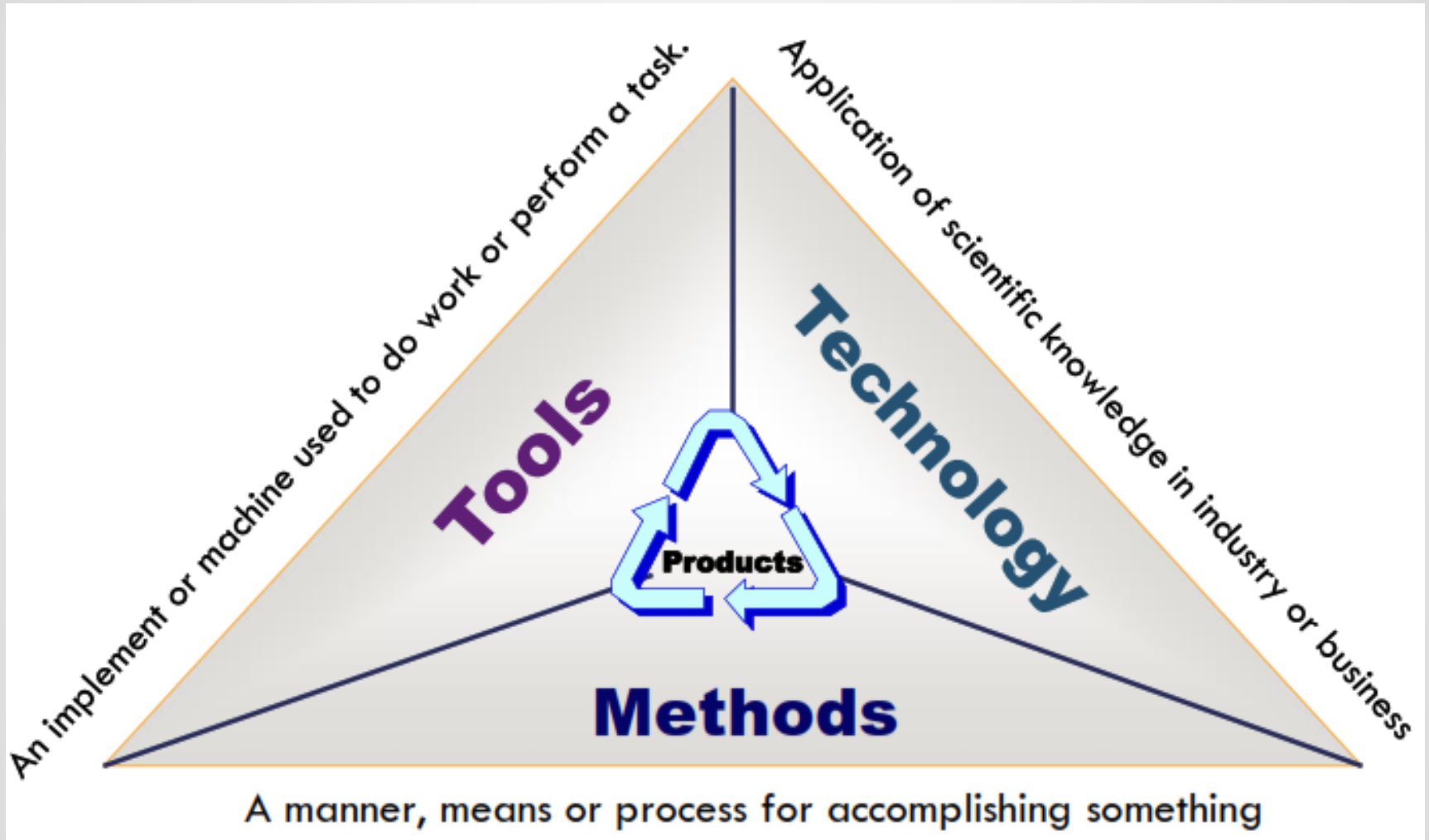
**Rules, Process, Manner**



# Software :: Product



# Software :: Product





## What is software?

```
..._mod = modifier_ob.  
# Set mirror object to mirror_  
mirror_mod.mirror_object =  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
# Selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_  
mirror_ob.select = 0  
bpy.context.selected_obj  
data.objects[one.name].select  
  
print("please select exactly  
----- OPERATOR CLASSES -----  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

## What does Software mean?

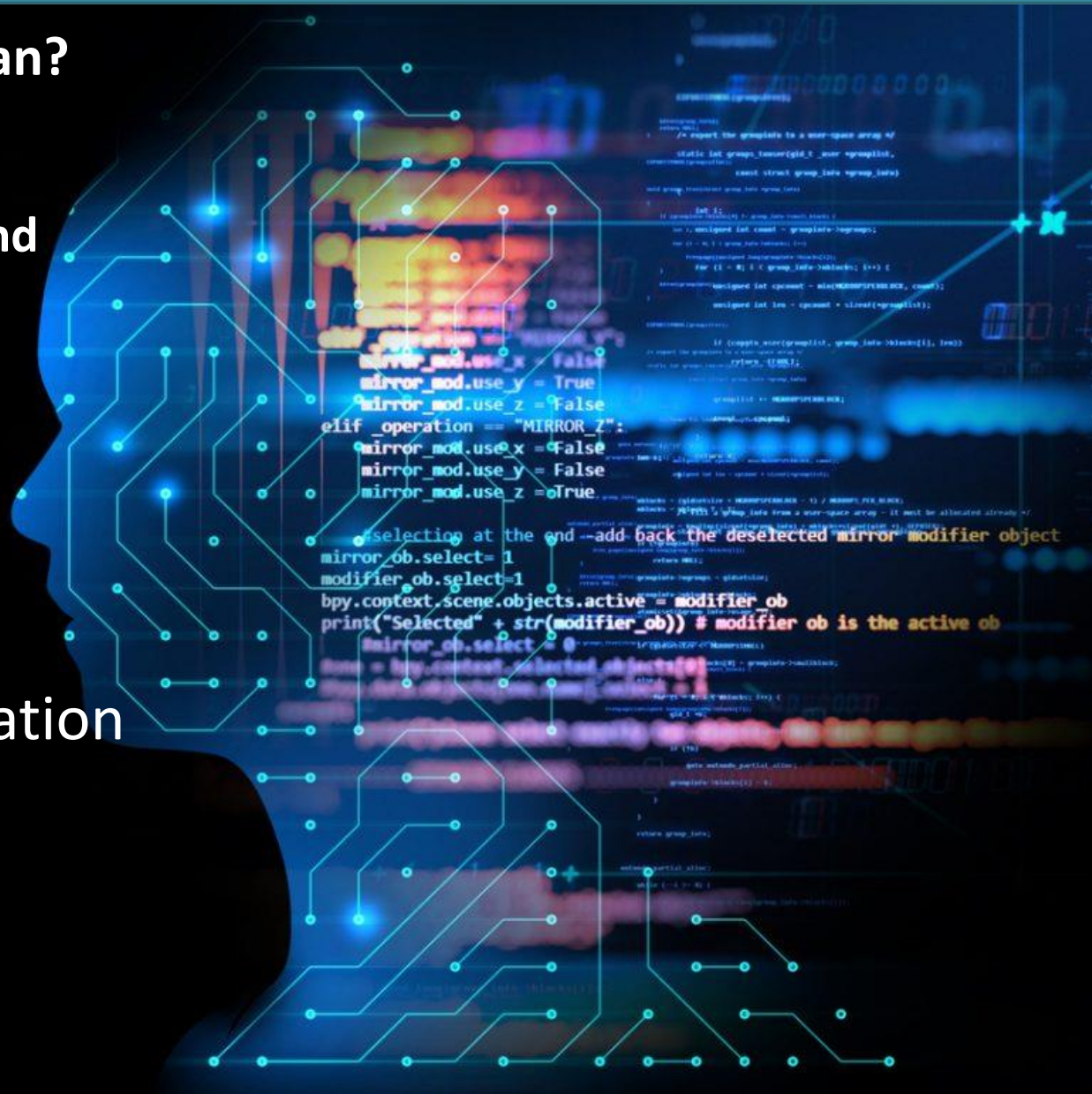
- ❖ A set of instructions
- ❖ A program is an executable code
- ❖ Executable computer programs and associated documentation
- ❖ A program or set of programs containing instructions which provide desired functionality .

# Software

## What does Software mean?

The Institute of Electrical and Electronic Engineers (IEEE) defines software as a

Collection of computer programs, procedures, rules and associated documentation and data.



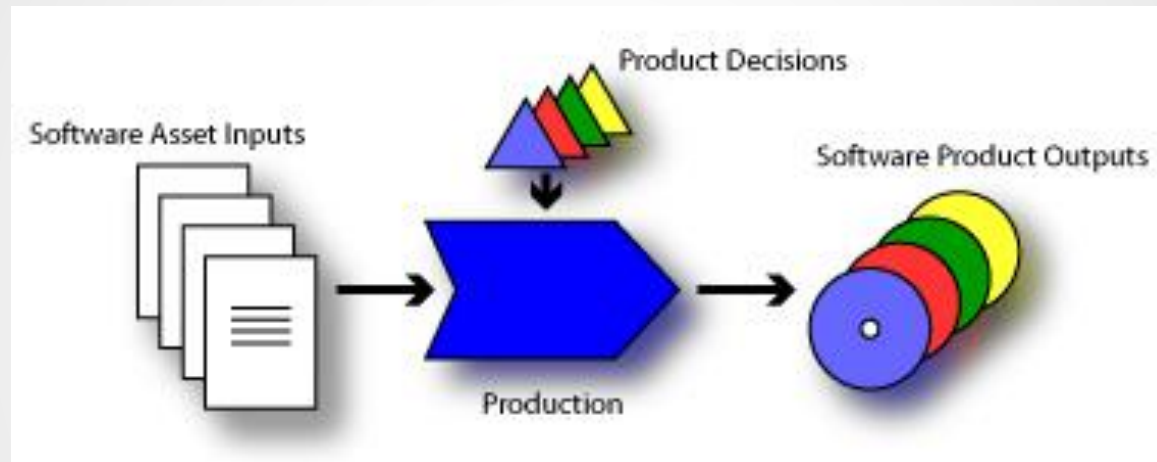
```
mirror_mod.use_x = False
mirror_mod.use_y = True
mirror_mod.use_z = False
elif operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True

#selection at the end --add back the deselected mirror modifier object
mirror_ob.select=1
modifier_ob.select=1
bpy.context.scene.objects.active = modifier_ob
print("Selected" + str(modifier_ob)) # modifier ob is the active ob
#mirror_ob.select = 0
```



## What is software product?

Software, when made for a specific requirement is called **software product**.



Software products may be

- ❖ **Generic**- developed to be sold to a range of different customers.
- ❖ **Customised (Bespoke)** - developed for a single customer according to their specification.

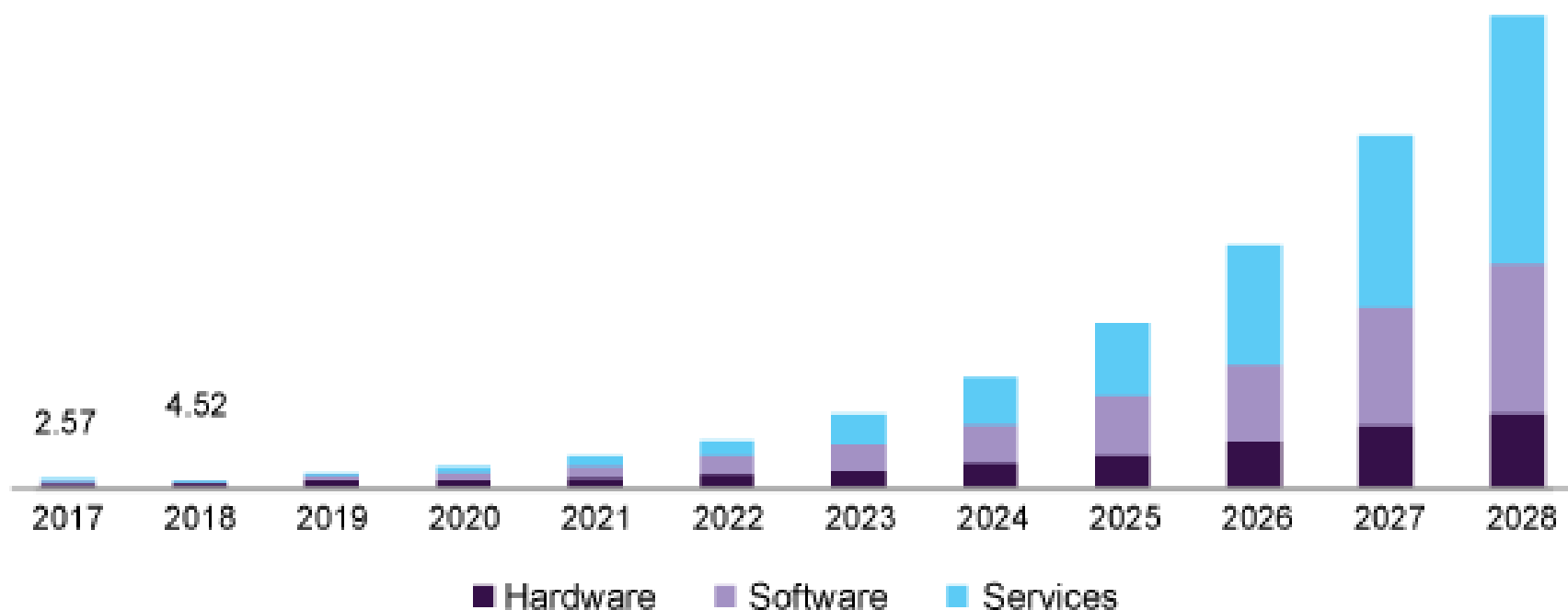
## Essential attributes of good software

- ❖ Maintainability
- ❖ Dependability and security
- ❖ Efficiency
- ❖ Acceptability

In addition to the above mentioned characteristics, **robustness** and **integrity** are also important.

## Global Software Market – Industry Trends and Forecast

### Global Software Market – Industry Trends 2017-2028

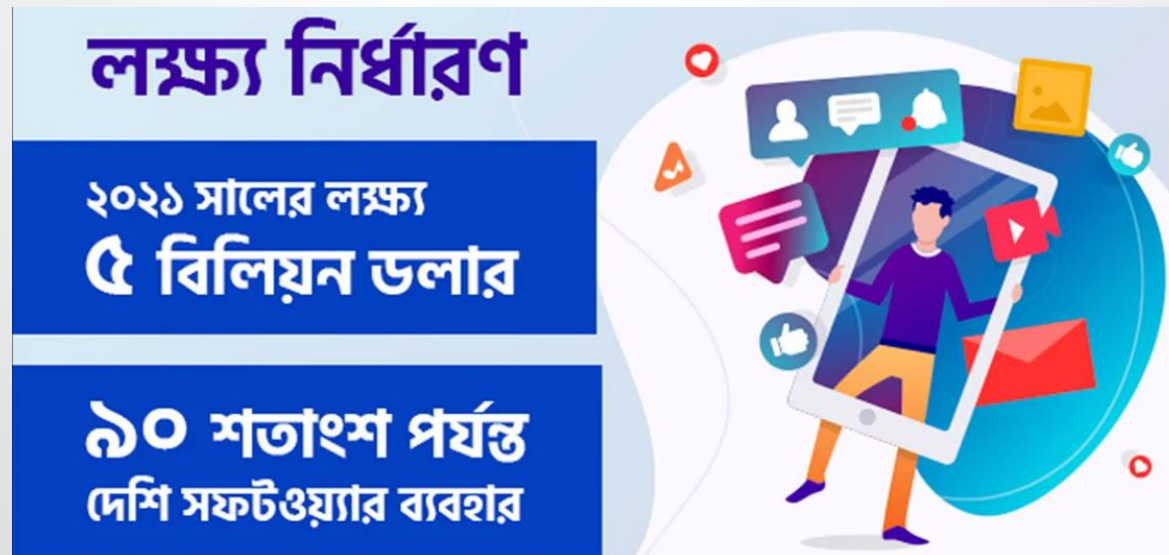


Source: [www.grandviewresearch.com](http://www.grandviewresearch.com)



# Market Insight: IT Sector of Bangladesh

- ❖ Exports of software and information technology services in the country exceeded **1 billion US dollars in 2018**.
- ❖ The country's market stands at about **10 thousand crore**. About **50%** of this is occupied by local software developers
- ❖ Out of 60 banks in the country, only **26 banks** are using local software. In the local software sector, there is a high demand for ERP software and mobile applications.
- ❖ According to the Ministry of Information and Communication Technology, the government's goal is to **export 5 billion** worth of software and services **by 2021**.



## BOOSTING ICT SECTOR EXPORTS



Govt wants to increase ICT exports to \$5 billion by 2025



In last financial year, the sector's exports were about \$1 billion



Govt to create database of IT-skilled Bangladeshi expatriates



ICT desks to be set up in Bangladesh embassies

# Classification of Software

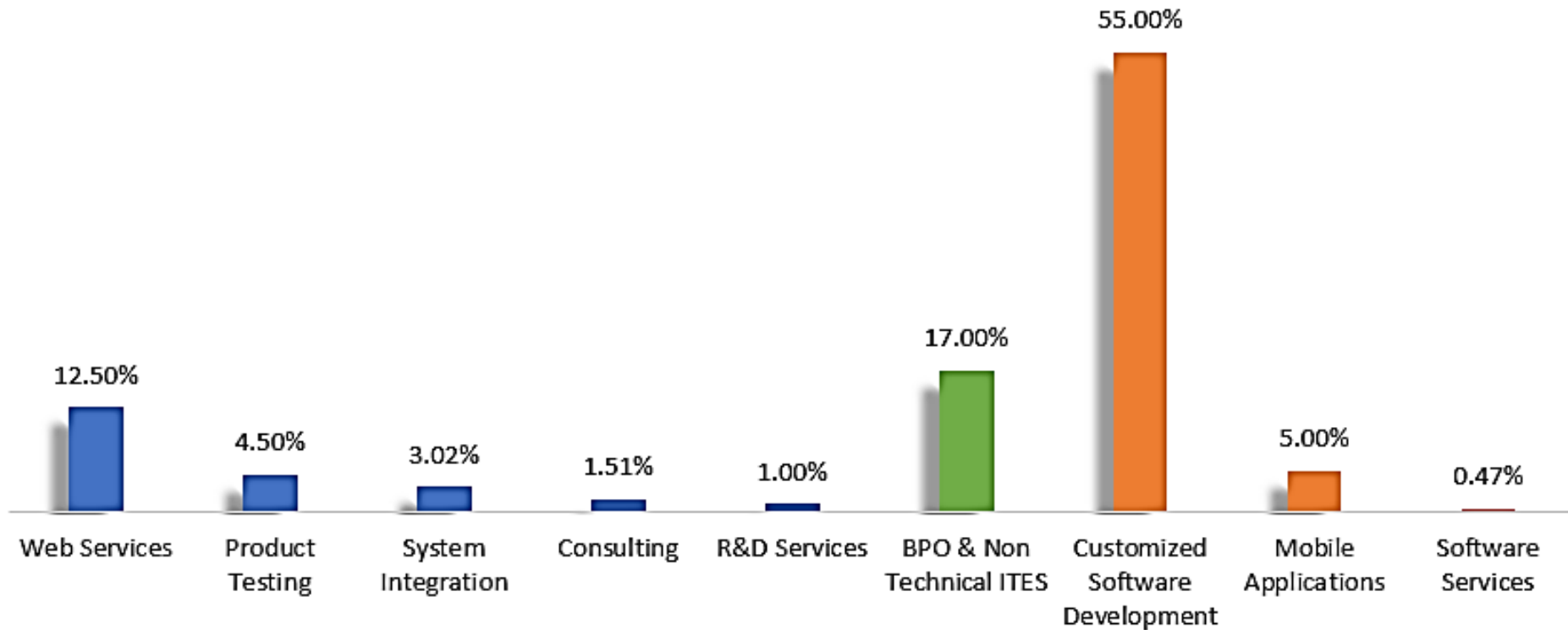
## Software Classification

- System software
  - Application software
  - Engineering/scientific software
  - Embedded software
- WebApps
  - Mobile Apps
  - AI software



# Market Insight: IT Sector of Bangladesh

Share in Total ICT Sector



Source: BASIS & Light-Castle Research -2021



Thanks to All