

```
for 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_ob.name))  
mirror_ob.select = 0  
= bpy.context.selected_objects  
data.objects[one.name].select  
print("please select exactly one object")
```

Programming Fundamentals

Abdul Haseeb

```
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"
```

Course Objectives

- The aim is not to make you the expert of computer programming but only the basics of computer programming.
- To familiarize students with the use of C++.
- To equip students with tools and techniques to implement a given problem programmatically

Recommended Books

- Problem Solving with C++ 10th edition by Walter Savitch- Pearson Prentice-Hall
- C++ Programming from Problem Analysis to Program Design, 7th Edition, By, DS Malik
- Programming in C++ by Dietel and Dietal
- Programming in C++ by Robert Laphore
- Lecture Handouts

Grading Criteria

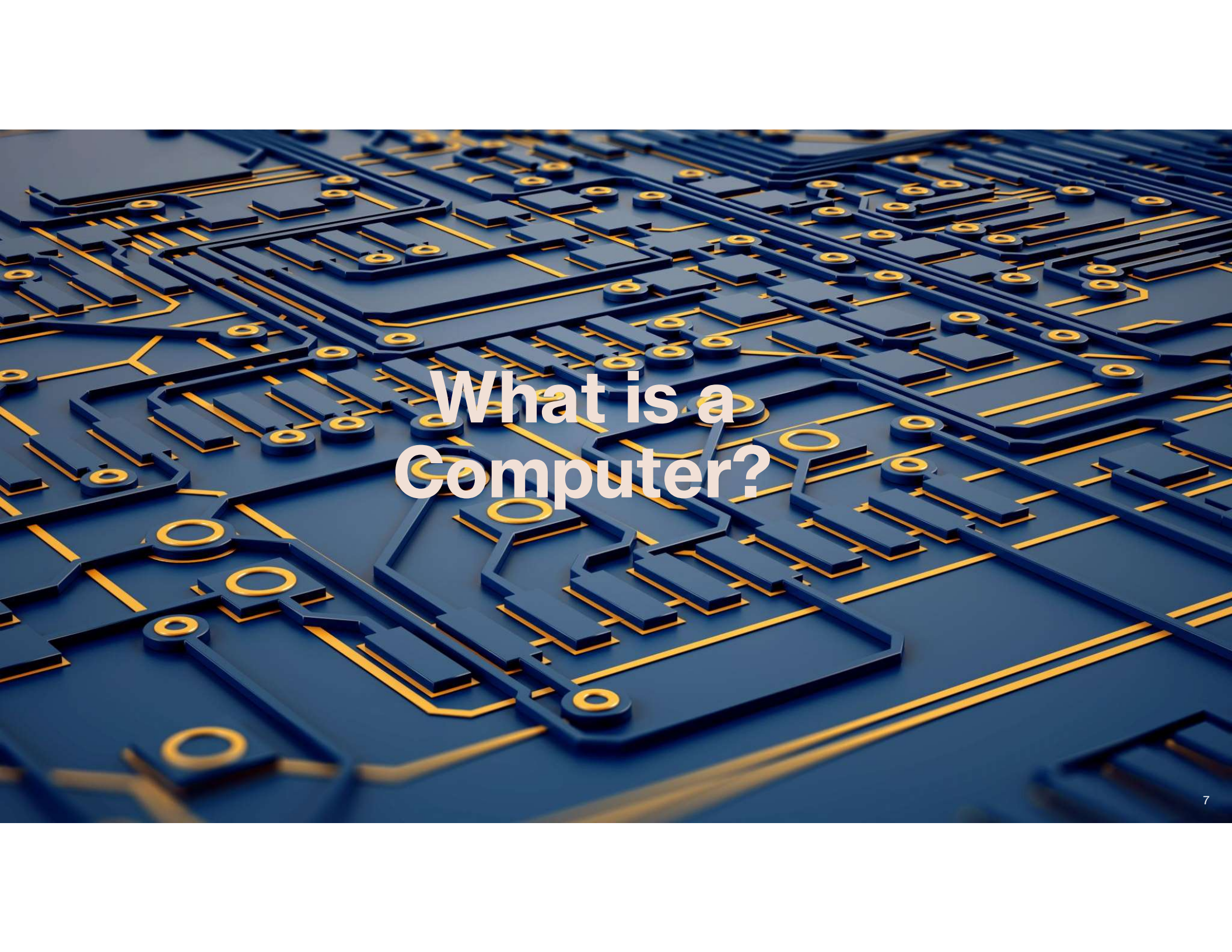
Mid Term	=	30%
Final Exam	=	40%
Sessional	=	60%

Recommended Book

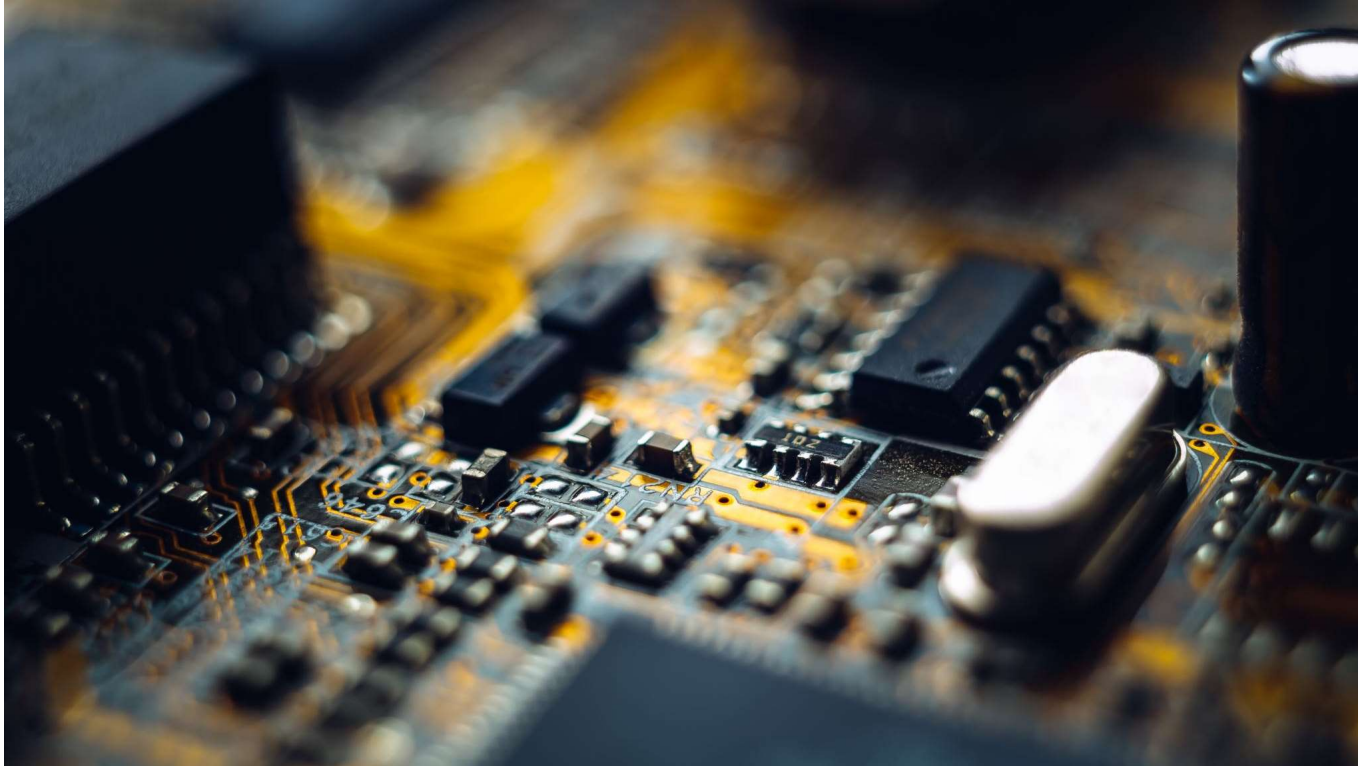
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About Course Instructor

- Abdul Haseeb Shaikh, MS(CS) with Specialization in Machine Learning and Deep Learning from Sukkur IBA University 2021.
- Ex-Lecturer at Sukkur IBA University Kandhkot Campus
- Ex-Subject Specialist at IBA Community College Khairpur
- Research Interests: Cybersecurity, Machine Learning, Deep Learning, AI in Cybersecurity
- Programming Languages:
 - C++, Java, Python
- How to Reach me?
 - ahaseeb.faculty@aror.edu.pk



What is a Computer?



WHAT IS COMPUTER?

An Electronic device which can accept data as input, processes it and produces output

ARE COMPUTERS MORE INTELLIGENT THAN HUMANS?

- Computers can outperform humans in some tasks like playing games etc, but they cant match the intelligence of a human





How to Teach/Train Computers?

Programs?

Definition of a Program

List/Set of Instructions which allows a computer to perform specific task

Programming

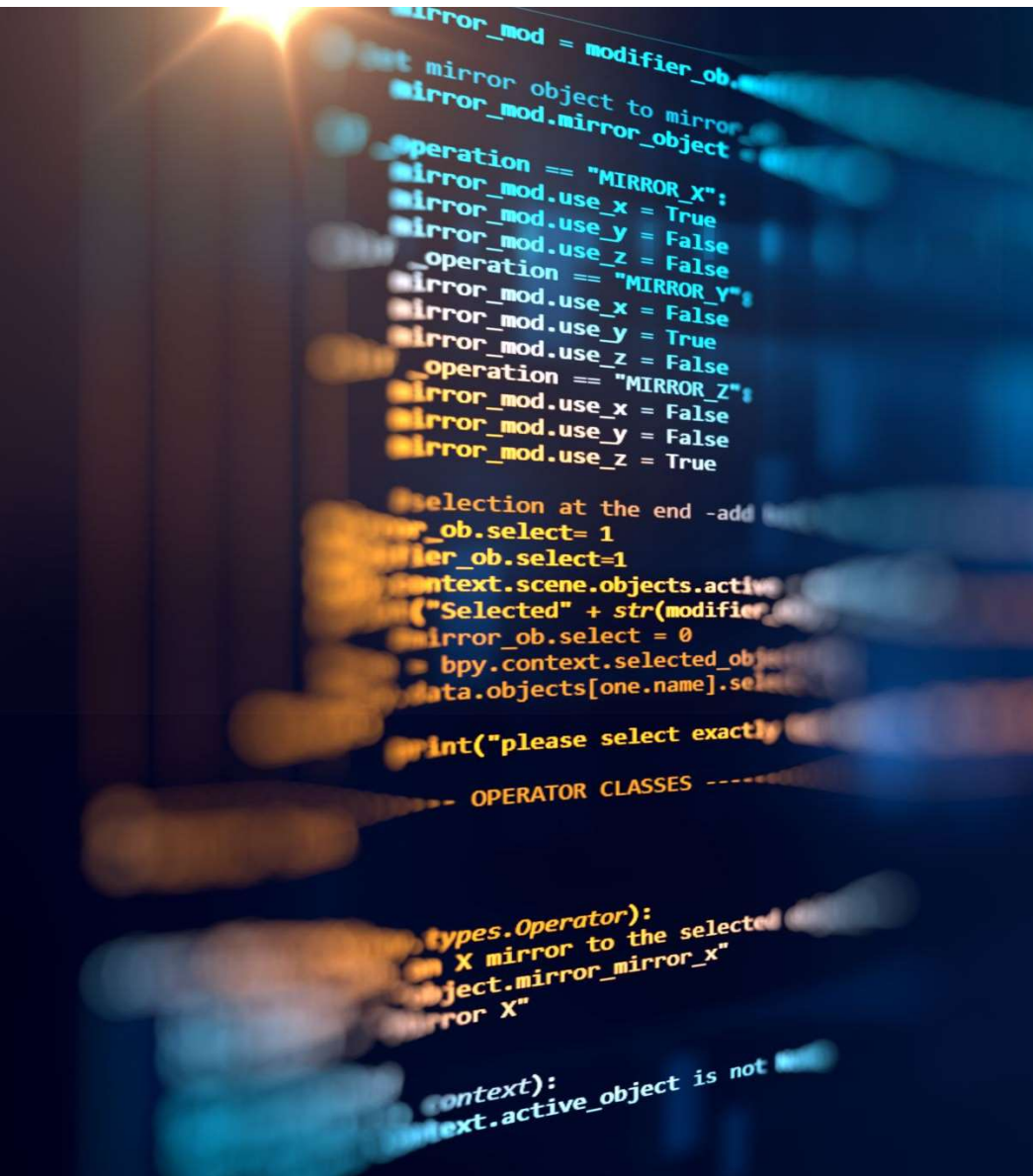
The process of Writing a program

```
    # For 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
    mirror_ob.select=1
    context.scene.objects[0].select
    ("Selected" + str(mirror_ob.select))
    mirror_ob.select = 0
    bpy.context.selected_objects
    data.objects[0].select
    print("please select exactly one object")
```

```
-- OPERATOR CLASSES -----
```

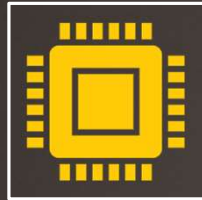
```
types.Operator):
    X mirror to the selected
    object.mirror_mirror_x"
    mirror X"
```

Programming Languages

- What is a Language?
 - Means of communication
- Different Languages like C++, Java, Python, Julia, Ruby, Swift, Javascript, Fortran, Pascal, Basic etc

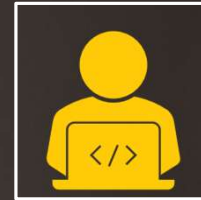
Why was programming developed?



Automation:

Past computers used to perform complex calculations

- Manual Adjustment for each calculation



Complex Problem Solving:

As computer technology advanced, there was a need to solve complex problems

Why learn Programming?

- ▶ **Foundation of CS:**

- ▶ For every advanced CS Subject, you will need programming at some point

- ▶ **Problem solving:**

- ▶ Complex problems require creative solutions, provided with programming

