In [18]:
```
actions = ["ProblemSolving","Algorithms","VersionControl","Debugging","Syntax"
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
```

```
ProblemSolving
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [4]:
```
print(actions[0])
```

```
ProblemSolving
```

In [5]:
```
print(actions[0])
print(actions[1])
print(actions[2])
```

```
ProblemSolving
Algorithms
VersionControl
```

In [6]:
```
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
```

```
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [19]:
```
actions = ["Look at Tutorials","Watch Tutorials Online","ProblemSolving","Algo
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
print(actions[8])
print(actions[9])
```

```
Look at Tutorials
Watch Tutorials Online
ProblemSolving
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [23]:
```
actions = ["Desire to Learn","Commitment to Learning","Look at Tutorials","Wat
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
print(actions[8])
print(actions[9])
print(actions[10])
print(actions[11])
```

```
Desire to Learn
Commitment to Learning
Look at Tutorials
Watch Movies about Programmmers
ProblemSolving
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [22]:
```
actions = ["Desire to Learn","Commitment to Learning","Watch Tutorials Online"
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
print(actions[8])
print(actions[9])
print(actions[10])
print(actions[11])
```

```
Desire to Learn
Commitment to Learning
Watch Tutorials Online
Watch Movies about Programmmers
ProblemSolving
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [24]:
```
actions = ["Desire to Learn","Commitment to Learning","Watch Tutorials Online"
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
print(actions[8])
print(actions[9])
print(actions[10])
```

```
Desire to Learn
Commitment to Learning
Watch Tutorials Online
ProblemSolving
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [25]:
```
actions = ["Commitment to Learning","Watch Tutorials Online","ProblemSolving",
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
print(actions[8])
print(actions[9])
```

```
Commitment to Learning
Watch Tutorials Online
ProblemSolving
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [27]:
```
print(actions[2])
```

```
ProblemSolving
```

In [55]:
```
actions = ["ProblemSolving","Commitment to Learning","Watch Tutorials Online",
print(actions[0])
print(actions[1])
print(actions[2])
print(actions[3])
print(actions[4])
print(actions[5])
print(actions[6])
print(actions[7])
print(actions[8])
print(actions[9])
```

```
ProblemSolving
Commitment to Learning
Watch Tutorials Online
Algorithms
VersionControl
Debugging
Syntax
CriticalThinking
Research
Creativity
```

In [29]:
```
actions = ["ProblemSolving","Commitment to Learning","Watch Tutorials Online",

first_three_actions = actions[0:3]

print(first_three_actions)
```

```
['ProblemSolving', 'Commitment to Learning', 'Watch Tutorials Online']
```

In [3]:
```
actions = ['ProblemSolving','Commitment to Learning','Watch Tutorials Online',
print(actions)
```

```
['ProblemSolving', 'Commitment to Learning', 'Watch Tutorials Online', 'Criti
calThinking', 'Research']
```

In [4]:
```
actions = ['ProblemSolving', 'Commitment to Learning', 'Watch Tutorials Online

if 'Commitment to Learning' in actions:
    print("Yes, 'Commitment to Learning' is in the list.")
else:
    print("No, 'Commitment to Learning' is not in the list.")
```

```
Yes, 'Commitment to Learning' is in the list.
```

In [17]:
```
course_ids = ['CINF 100', 'CINF 108', 'CINF 124', 'CINF 131', 'CINF 171', 'CIN
course_topics = ['Information in the 21st Century','Programming for Problem So

print('Course IDs: ' + str(course_ids))
print()
print('Course topics: ' + str(course_topics))
```

```
Course IDs: ['CINF 100', 'CINF 108', 'CINF 124', 'CINF 131', 'CINF 171', 'CIN
F 197']

Course topics: ['Information in the 21st Century', 'Programming for Problem S
olving', 'Cybersecurity Basics', 'Introduction to Data Analytics', 'eSports &
Digital Gaming Ecosystem', 'Mini Special Topic in Informatics']
```

In [18]:
```
course_ids = ['CINF 100', 'CINF 108', 'CINF 124', 'CINF 131', 'CINF 171', 'CIN
sorted_list = sorted(course_ids)
print(sorted_list)
```

```
['CINF 100', 'CINF 108', 'CINF 124', 'CINF 131', 'CINF 171', 'CINF 197']
```

In [19]:
```
course_topics = ['Information in the 21st Century','Programming for Problem So
sorted_list = sorted(course_topics)
print(sorted_list)
```

```
['Cybersecurity Basics', 'Information in the 21st Century', 'Introduction to
Data Analytics', 'Mini Special Topic in Informatics', 'Programming for Proble
m Solving', 'eSports & Digital Gaming Ecosystem']
```

In [21]:
```
course_ids = ['CINF 100', 'CINF 108', 'CINF 124', 'CINF 131', 'CINF 171', 'CIN
reversed_list= sorted(course_ids, reverse=True)
print(reversed_list)
```

```
['CINF 197', 'CINF 171', 'CINF 131', 'CINF 124', 'CINF 108', 'CINF 100']
```

In [22]:
```
course_topics = ['Information in the 21st Century','Programming for Problem So
reversed_list = sorted(course_topics, reverse=True)
print(reversed_list)
```

```
['eSports & Digital Gaming Ecosystem', 'Programming for Problem Solving', 'Mi
ni Special Topic in Informatics', 'Introduction to Data Analytics', 'Informat
ion in the 21st Century', 'Cybersecurity Basics']
```

In [23]:
```
#It is not possible to unsort a list because once the format
#is changed, it is impossible to reverse it
#the only way to get the original version back would be to retype it
```

In [24]:
```
course_ids = [100, 108, 124, 131, 171, 197]
course_topics = ['Information in the 21st Century', 'Programming for Problem S

for course_id, course_topic in zip(course_ids, course_topics):
    print(f"Course ID: {course_id}, Course Topic: {course_topic}")
```

```
Course ID: 100, Course Topic: Information in the 21st Century
Course ID: 108, Course Topic: Programming for Problem Solving
Course ID: 124, Course Topic: Cybersecurity Basics
Course ID: 131, Course Topic: Introduction to Data Analytics
Course ID: 171, Course Topic: eSports & Digital Gaming Ecosystem
Course ID: 197, Course Topic: Mini Special Topic in Informatics
```

In [26]:
```
courses = ((100, "Information in the 21st Century"),(108, "Programming for Pro
print(courses)
```

```
((100, 'Information in the 21st Century'), (108, 'Programming for Problem Sol
ving'), (124, 'Cybersecurity Basics'), (131, 'Introduction to Data Analytic
s'), (171, 'eSports & Digital Gaming Ecosystem'), (197, 'Mini Special Topic i
n Informatics'))
```

In [27]:
```
course_info = ((100, "Information in the 21st Century"),(108, "Programming for

for course in course_info:
    course_id = course[0]
    print("Welcome to CINF {}!".format(course_id))
```

```
Welcome to CINF 100!
Welcome to CINF 108!
Welcome to CINF 124!
Welcome to CINF 131!
Welcome to CINF 171!
Welcome to CINF 197!
```

In [30]:
```
courses = ((100, "Information in the 21st Century"),(108, "Programming for Pro
print(str(courses))
```

```
((100, 'Information in the 21st Century'), (108, 'Programming for Problem Sol
ving'), (124, 'Cybersecurity Basics'), (131, 'Introduction to Data Analytic
s'), (171, 'eSports & Digital Gaming Ecosystem'), (197, 'Mini Special Topic i
n Informatics'), (200, "Research Methods for Informatics'"))
```

In [31]:
```
courses = ((100, "Information in the 21st Century"),(108, "Programming for Pro
print(str(courses))
```

```
((100, 'Information in the 21st Century'), (108, 'Programming for Problem Sol
ving'), (124, 'Cybersecurity Basics'), (131, 'Introduction to Data Analytic
s'), (171, 'eSports & Digital Gaming Ecosystem'), (200, "Research Methods for
Informatics'"))
```

In [33]:
```
courses = ((100, "Information in the 21st Century"),(108, "Programming for Pro

for course in courses:
    course_id, course_topic = course
    print("Course ID: {}, Course Topic: {}".format(course_id, course_topic))
```

```
Course ID: 100, Course Topic: Information in the 21st Century
Course ID: 108, Course Topic: Programming for Problem Solving
Course ID: 124, Course Topic: Cybersecurity Basics
Course ID: 131, Course Topic: Introduction to Data Analytics
Course ID: 171, Course Topic: eSports & Digital Gaming Ecosystem
Course ID: 200, Course Topic: Research Methods for Informatics'
```

In [34]:
```
Faculty1 = {}
```

In [35]:
```
Faculty2 = {"name": None,"last name": None,"job title": None,"email": None}
```

In [37]:
```
Faculty3 = {"name": "Martha","last name": "Avila","job title": "Informatics Le
```

In [41]:
```
Faculty1["name"] = "Gary"
Faculty1["last name"] = "Ackerman"
Faculty1["job title"] = "Associate Professor and Associate Dean"
Faculty1["email"] = "gackerman@albany.edu"
```

In [ ]:
```
Faculty2 = {"name": "Brandon","last name": "Behlendorf","job title": "Assistan
```

In [42]:
```
Faculty1["office"] = "tbd"
```

In [43]:
```
Faculty1["office"] = "ETEC 350"
```

In [44]:
```
del Faculty1["office"]
```

In [47]:
```
last_name = Faculty1["last name"]
print(last_name)
```

```
Ackerman
```

In [50]:
```
name = Faculty3["name"]
last_name = Faculty3["last name"]
job_title = Faculty3["job title"]
message = f"{name} {last_name} is a {job_title}."
print(message)
```

```
Martha Avila is a Informatics Lecturer.
```

In [53]:
```
items = Faculty1.items()
print(items)
print()

keys = Faculty2.keys()
print(keys)
print()

values = Faculty3.values()
print(values)
```

```
dict_items([('name', 'Gary'), ('last name', 'Ackerman'), ('job title', 'Assoc
iate Professor and Associate Dean'), ('email', 'gackerman@albany.edu')])

dict_keys(['name', 'last name', 'job title', 'email'])

dict_values(['Martha', 'Avila', 'Informatics Lecturer', 'mavilamaravilla@alba
ny.edu'])
```

In [54]:
```
email = Faculty3.get("email")
print(email)
```

```
mavilamaravilla@albany.edu
```

In [9]:
```
Faculty1 = {}
Faculty2 = {}
Faculty3 = {}

Faculty1["universities"] = ["University of the Witwatersrand", "Yale Universit
Faculty2["universities"] = ["University of California at San Diego", "Ohio Sta
Faculty3["universities"] = ["Universidad de las Americas-Puebla", "University

print(Faculty1)
print(Faculty2)
print(Faculty3)
```

```
{'universities': ['University of the Witwatersrand', 'Yale University', "Kin
g's College"]}
{'universities': ['University of California at San Diego', 'Ohio State Univer
sity', 'University of Maryland']}
{'universities': ['Universidad de las Americas-Puebla', 'University of Bologn
a', 'UAlbany']}
```

In [ ]:
```
faculty_members = {
    "Faculty1": {},
    "Faculty2": {},
    "Faculty3": {}
}

faculty_members["Faculty1"]["universities"] = None
faculty_members["Faculty2"]["universities"] = None
faculty_members["Faculty3"]["universities"] = None

print(faculty_members)
```

In [7]:
```
faculty_members = {
    "Faculty1": {},
    "Faculty2": {},
    "Faculty3": {}
}

faculty_members["Faculty1"]["universities"] = ["University of the Witwatersran
faculty_members["Faculty2"]["universities"] = None
faculty_members["Faculty3"]["universities"] = None

print(faculty_members)
```

```
{'Faculty1': {'universities': ['University of the Witwatersrand', 'Yale Unive
rsity', "King's College"]}, 'Faculty2': {'universities': None}, 'Faculty3':
{'universities': None}}
```

In [6]:
```
faculty_members = {
    "Faculty1": {},
    "Faculty2": {},
    "Faculty3": {}
}

faculty_members["Faculty1"]["universities"] = ["University of the Witwatersran
faculty_members["Faculty2"]["universities"] = ["University of California at Sa
faculty_members["Faculty3"]["universities"] = ["Universidad de las Americas-Pu

print(faculty_members)
```

```
{'Faculty1': {'universities': ['University of the Witwatersrand', 'Yale Unive
rsity', "King's College"]}, 'Faculty2': {'universities': ['University of Cali
fornia at San Diego', 'Ohio State University', 'University of Maryland']}, 'F
aculty3': {'universities': ['Universidad de las Americas-Puebla', 'University
of Bologna', 'UAlbany']}}
```