Activity_3

September 11, 2024

[23]:
```python
# Q1
def product(items):
  finished = 1
  for item in items:
    finished *= item
  return finished

def average(l):
  return sum(l) / len(l)

user_input = input("Enter 10 numbers separated by spaces\n").split()
user_ints = [int(x) for x in user_input]
addn = sum(user_ints)
prod = product(user_ints)
av = average(user_ints)
min_value = min(user_ints)
max_value = max(user_ints)

print(f'Sum {addn}')
print(f'product is {prod}')
print(f'average {av}')
print(f'min {min_value}')
print(f'max {max_value}')
print(f'reverse {list(reversed(user_ints))}')
print(f'all odds {[x for x in user_ints if x % 2 != 0]}')
print(f'remove duplicates {list(set(user_ints))}')
print(f'all evens {[x for x in user_ints if x % 2 == 0]}')

user_ints.sort(key=lambda x:x)
print(f'sorted {user_ints}')
```

```
Enter 10 numbers separated by spaces
5 3 2 7 9
Sum 26
product is 1890
average 5.2
min 2
max 9
```

```
reverse [9, 7, 2, 3, 5]
all odds [5, 3, 7, 9]
remove duplicates [2, 3, 5, 7, 9]
all evens [2]
sorted [2, 3, 5, 7, 9]
```

[21]:
```python
# Q2
keys = ["sum", "product", "average", "min", "max"]
values = [addn, prod, av, min_value, max_value]
stats_dict = { k:v for k, v in zip(keys, values)}
print(stats_dict)
```

```
{'sum': 27, 'product': 5040, 'average': 4.5, 'min': 2, 'max': 7}
```

[39]:
```python
# Q3
students = ["Alex", "Mica", "Nancy", "Eva", "Drew"]
classes = ["CMPSCI_4200", "CMPSCI_4250", "CMPSCI_4300"]
course_grades = {}
full_dict = {}
for student in students:
  for course in classes:
    course_grades.update({ course: input(f"Enter grade for {student} in␣
 ↪{course}")})
  full_dict.update({ student: course_grades })

stats_for_courses = {}
for student, courses in full_dict.items():
  for course, grade in courses.items():
    if grade < 60:
      print(f'student {student} failed {course}')
    if grade > 90:
      print(f'{student} receive {grade} in {course}')

    if grade > 60:
      print(f'{student} passed {course} with an {grade}')
```

```
Enter grade for Alex in CMPSCI_4200A
Enter grade for Alex in CMPSCI_4250B
Enter grade for Alex in CMPSCI_4300A
Enter grade for Mica in CMPSCI_4200B
Enter grade for Mica in CMPSCI_4250F
Enter grade for Mica in CMPSCI_4300F
Enter grade for Nancy in CMPSCI_4200B
Enter grade for Nancy in CMPSCI_4250A
Enter grade for Nancy in CMPSCI_4300B
Enter grade for Eva in CMPSCI_4200D
Enter grade for Eva in CMPSCI_4250C
Enter grade for Eva in CMPSCI_4300B
Enter grade for Drew in CMPSCI_4200A
```

```
Enter grade for Drew in CMPSCI_4250B
Enter grade for Drew in CMPSCI_4300F
{'Alex': {'CMPSCI_4200': 'A', 'CMPSCI_4250': 'B', 'CMPSCI_4300': 'F'}, 'Mica':
{'CMPSCI_4200': 'A', 'CMPSCI_4250': 'B', 'CMPSCI_4300': 'F'}, 'Nancy':
{'CMPSCI_4200': 'A', 'CMPSCI_4250': 'B', 'CMPSCI_4300': 'F'}, 'Eva':
{'CMPSCI_4200': 'A', 'CMPSCI_4250': 'B', 'CMPSCI_4300': 'F'}, 'Drew':
{'CMPSCI_4200': 'A', 'CMPSCI_4250': 'B', 'CMPSCI_4300': 'F'}}
Alex receive A in CMPSCI_4200
Alex passed CMPSCI_4200 with an A
Alex passed CMPSCI_4250 with an B
student Alex failed CMPSCI_4300
Mica receive A in CMPSCI_4200
Mica passed CMPSCI_4200 with an A
Mica passed CMPSCI_4250 with an B
student Mica failed CMPSCI_4300
Nancy receive A in CMPSCI_4200
Nancy passed CMPSCI_4200 with an A
Nancy passed CMPSCI_4250 with an B
student Nancy failed CMPSCI_4300
Eva receive A in CMPSCI_4200
Eva passed CMPSCI_4200 with an A
Eva passed CMPSCI_4250 with an B
student Eva failed CMPSCI_4300
Drew receive A in CMPSCI_4200
Drew passed CMPSCI_4200 with an A
Drew passed CMPSCI_4250 with an B
student Drew failed CMPSCI_4300
```

[ ]: