Computing for Engineers – ENGG 233

Lab 8

Efran Aghaeekiasarae

Jaxon Braun

L01

Orange

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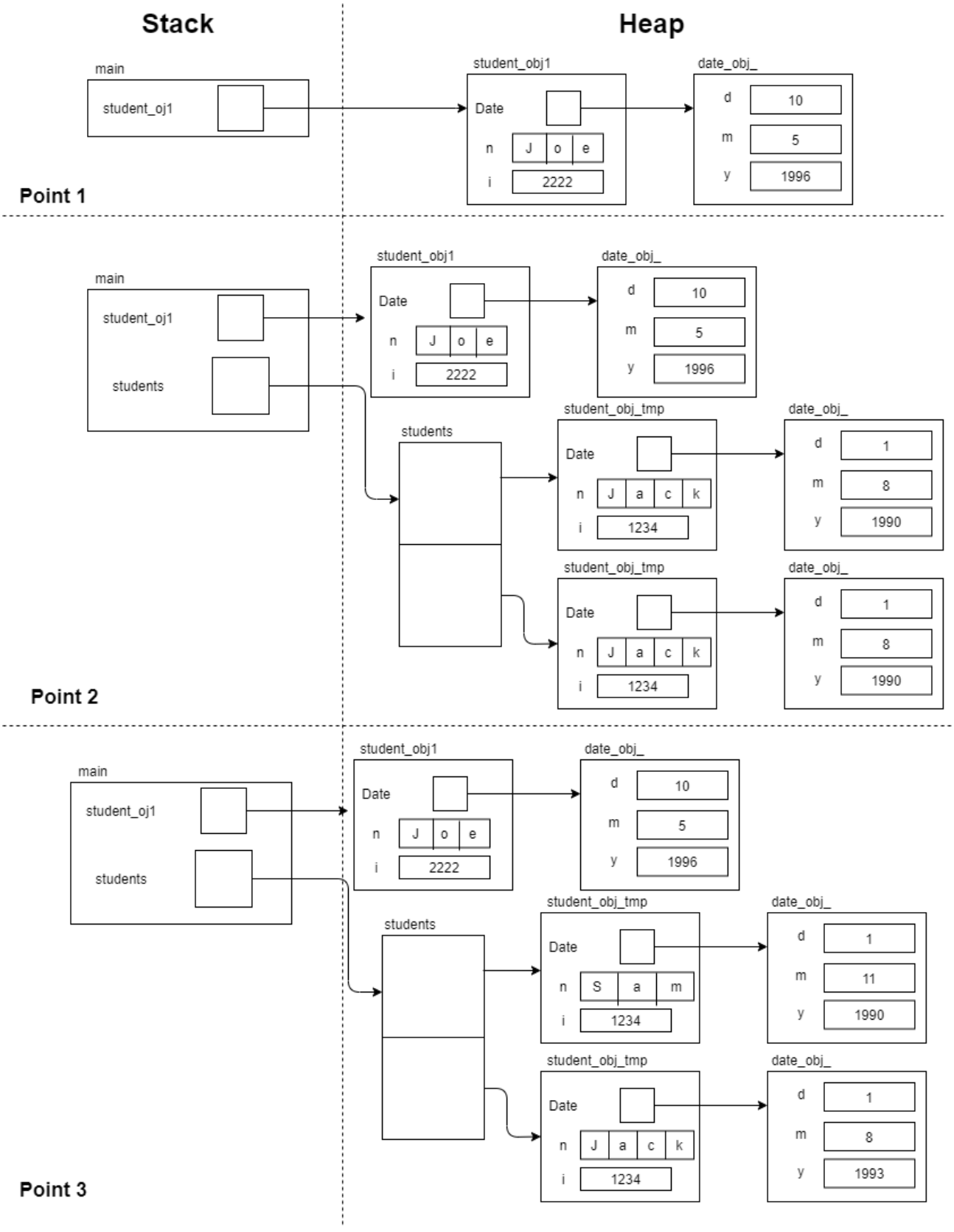
Exercise 1: Memory Diagram



Exercise 2: Class Implementation

```
class Player:
    def __init__(self, number, shot_accuracy):
        self.number = number
        self.shot_accuracy = shot_accuracy

    def speed_ratio(self, bench_mark_accuracy):
        return (self.shot_accuracy / bench_mark_accuracy)

def main():
    bench_mark_accuracy = 85.0

    p1 = Player(5, 65.6)

    ratio = p1.speed_ratio(bench_mark_accuracy)

    print(ratio)

if __name__ == "__main__":
    main()
```

```
0.7717647058823529
```

Exercise 3: Classes and Objects

```python
import random

class Point:
    def __init__(self, X, Y, Z):
        self.X = X
        self.Y = Y
        self.Z = Z

    def fill_point(self):
        self.X = random.randrange(0, 100)
        self.Y = random.randrange(0, 100)
        self.Z = random.randrange(0, 100)

def distance_between_points(p1, p2):
    return pow(pow(p1.X - p2.X, 2) + pow(p1.Y - p2.Y, 2) + pow(p1.Z - p2.Z, 2), 0.5)

def main():
    p1 = Point(0, 0, 0)
    p2 = Point(0, 0, 0)
    p1.fill_point()
    p2.fill_point()
    d = distance_between_points(p1, p2)
    print("The distance between the two points is: ", d)

if __name__ == "__main__":
    main()
```

```
The distance between the two points is:  55.263007518592396
```