AP Computer Science Principles: 2020 Create Task
Student Sample G

3a. The program my partner and I wrote addresses the issue of making an RPG character. Though there are many RPG character creators out there, they can be complicated and difficult to use. Our program is very straightforward with lots of room for customizability in order to allow the easy creation of an RPG character for either a beginner or a seasoned veteran.

3b. `stats = {"STR": 0, "INT": 0, "WIS": 0, "DEX": 0, "CON": 0, "CHR": 0}`

> Dictionary

```
3b. def StatRoll (index):
  roll1 = (randrange(1, 6)) #rolls
  random value 1-6 roll2 =
  (randrange(1, 6))
  roll3 = (randrange(1, 6))
  value = int(roll1) + int(roll2) + int(roll3) #adds the
  values together stats[index] = value #adds the new value
  to its proper index in stats
```

> Changing Values

Output

```
3b. print(stats)
```

3b. The data in the list "stats" represents the stats of the player's character, those being Strength, Intelligence, Wisdom, Dexterity, Constitution, and Charisma. This list manages complexity by allowing all of the stats of the character to be in one area, so they can be easily changed when bonuses arise, certain armor or magic alters them, etc. Without this list, each stat would be its own separate variable. Furthermore, this dictionary will make it much easier to export everything to a document, as all the player stats are in one central location, and it'll take much less formatting.

```
3c.
looper1 = 1
race = race.lower()
while looper1 == 1:
        if race == "dragonborn": PostRollValue("STR", 2)
          PostRollValue("CHR", 1) print()
          looper1 = 2
        elif race == "dwarf": PostRollValue("CON", 2)
          looper1 = 2
        elif race == "elf": PostRollValue("DEX", 2)
          looper1 = 2
        elif race == "gnome": PostRollValue("INT", 2)
          looper1 = 2
        elif race == "halfling": PostRollValue("DEX", 2)
          looper1 = 2
        elif race == "human": PostRollValue("STR", 1)
          PostRollValue("INT", 1)
          PostRollValue("WIS", 1)
          PostRollValue("DEX", 1)
          PostRollValue("CON", 1)
          PostRollValue("CHR", 1)
          looper1 = 2
        elif race == "tiefling": PostRollValue("INT", 1)
          PostRollValue("CHR", 2)
          looper1 = 2
```

3c. An algorithm that we have developed that includes sequencing, selection, and iteration is the race selection algorithm. This algorithm loops until a proper race is entered, and using if / elif statements, it selects which race was entered. It then uses sequencing to append values to the stats list based on that race. This allows the character to choose the race they want to play, and get its bonuses.

3d. To test this program, many different test cases were used. We tried entering numbers, as well as differently capitalized words, and in all cases we found we had made the program foolproof. One algorithm we tested was the race selection, in which we misspelled words and entered numbers.
However, with our loop and .lower, the program worked fine. We also tried entering things other than lawful, neutral, and chaotic in the alignment selection, but it worked perfectly as well.