**Exercise Six**

**Arrays:**

|  |  |  |
| --- | --- | --- |
| Byte (Character) | Index | Address |
| 1 | 0 | N |
| 2 | 1 | N+1 |
| 3 | 2 | N+2 |
| 4 | 3 | N+3 |
| 5 | 4 | N+4 |
| 6 | 5 | N+5 |
| 7 | 6 | N+6 |
| 8 | 7 | N+7 |
| 9 | 8 | N+8 |
| 10 | 9 | N+9 |
| 11 | 10 | N+10 |
| 12 | 11 | N+11 |
| 13 | 12 | N+12 |
| 14 | 13 | N+13 |
| 15 | 14 | N+14 |
| 16 | 15 | N+15 |
| 17 | 16 | N+16 |
| 18 | 17 | N+17 |
| 19 | 18 | N+18 |
| 20 | 19 | N+19 |
| 21 | 20 | N+20 |
| 22 | 21 | N+21 |
| 23 | 22 | N+22 |
| 24 | 23 | N+23 |
| 25 | 24 | N+24 |
| 26 | 25 | N+25 |
| 27 | 26 | N+26 |
| 28 | 27 | N+27 |
| 29 | 28 | N+28 |
| 30 | 29 | N+29 |
| 31 | 30 | N+30 |
| 32 | 31 | N+31 |

|  |  |  |
| --- | --- | --- |
| Byte (Character) | Index | Address |
| 1 | 0 | N |
| 2 | 1 | N+1 |
| 3 | 2 | N+2 |
| 4 | 3 | N+3 |
| 5 | 4 | N+4 |
| 6 | 5 | N+5 |
| 7 | 6 | N+6 |
| 8 | 7 | N+7 |
| 9 | 8 | N+8 |
| 10 | 9 | N+9 |
| 11 | 10 | N+10 |
| 12 | 11 | N+11 |
| 13 | 12 | N+12 |
| 14 | 13 | N+13 |
| 15 | 14 | N+14 |
| 16 | 15 | N+15 |
| 17 | 16 | N+16 |
| 18 | 17 | N+17 |
| 19 | 18 | N+18 |
| 20 | 19 | N+19 |
| 21 | 20 | N+20 |
| 22 | 21 | N+21 |
| 23 | 22 | N+22 |
| 24 | 23 | N+23 |
| 25 | 24 | N+24 |
| 26 | 25 | N+25 |
| 27 | 26 | N+26 |
| 28 | 27 | N+27 |
| 29 | 28 | N+28 |
| 30 | 29 | N+29 |
| 31 | 30 | N+30 |
| 32 | 31 | N+31 |
| 33 | 32 | N+32 |
| 34 | 33 | N+33 |
| 35 | 34 | N+34 |
| 36 | 35 | N+35 |
| 37 | 36 | N+36 |
| 38 | 37 | N+37 |
| 39 | 38 | N+38 |
| 40 | 39 | N+39 |
| 41 | 40 | N+40 |
| 42 | 41 | N+41 |
| 43 | 42 | N+42 |
| 44 | 43 | N+43 |
| 45 | 44 | N+44 |
| 46 | 45 | N+45 |
| 47 | 46 | N+46 |
| 48 | 47 | N+47 |
| 49 | 48 | N+48 |
| 50 | 49 | N+49 |
| 51 | 50 | N+50 |
| 52 | 51 | N+51 |
| 53 | 52 | N+52 |
| 54 | 53 | N+53 |
| 55 | 54 | N+54 |
| 56 | 55 | N+55 |
| 57 | 56 | N+56 |
| 58 | 57 | N+57 |
| 59 | 58 | N+58 |
| 60 | 59 | N+59 |
| 61 | 60 | N+60 |
| 62 | 61 | N+61 |
| 63 | 62 | N+62 |
| 64 | 63 | N+63 |

1. The equals sign doesn’t apply to numbers higher than 7, since that particular array understands numbers 0-7. In short, there shouldn’t be an equal sign.
2. The size is 2x5x3x4; Amount Occupied: 491,520 bytes.

**Comp Types:**

1. Struct MasterRecord{

String firstName;

String middleName;

String lastName;

String city;

String state;

String zipCode;

String SSN;

};

I would use member types related to their zip code, state, city, social security number, first, middle, and last name; data types would include strings.

1. Struct studentTranscript{

Double gpa;

String (MasterRecord data);

String className;

String advisor;

String stateID;

Char gender;

Char grade;

Double credit;

Int gradYear;

};

I used member types to describe all the data from the master record one that I did in strings, gpa in double since it would be something like, “3.82” or “4.00”, graduation year as an int (2013), amount of credit received in a class as a double (4.0), grade as a character (A , B, C, D, F, P, W), state ID as a string (05040824), advisor as a string (Carolina Mccluskey), and a name for the classes as a string (CMPSC 121).

1. It is useful when it’s necessary to work with different representation of the same binary data.