CS2100 Assignment 1 Answer Book

Name:	Lim Jia Wei
Student ID:	A0255479M
Tutorial Group Number:	13

After completion, save this file as AxxxxxxxY.pdf, then zip together with your parity.c file into a single zip file AxxxxxxxY.zip, and submit this on Canvas.

If you do not fill your particulars above, or do not follow the submission instructions you will forfeit 3 marks.

Question 1. (13 MARKS)

1a. (1 mark)
Parity (in hexadecimal): 0x04

1b. Cut and paste your **hex2dec** code below (2 marks)

```
uint8_t hex2dec(char *byte) {
    return *byte;
}
```

1c. Correctness of code: _____/10 (Filled in by TA)

Q1 Total: _____ / 13

Question 2. (10 MARKS)

2ai) X in base 7 is 523 (1 mark)
2aii) Y in base 5 is 124 (1 mark)
2aiii) The mystery base Z is 9 (1 mark)

2bi) The smallest positive number that can be represented is 0b0000 0000 0000 0001 = 0.00390625 (1 mark)
2bii) The largest positive number that can be represented is 0b0111 1111 1111 1111 = 127.99609375 (1 mark)
2biii) The most negative number that can be represented is 0b1111 1111 1111 1111 = -127.99609375 (1 mark)
2biv) Absolute error in representing 17.143 is 0.002375 (1 mark)

2c) 17.143 in IEEE754 format is 0x418924dd (3 marks)

Q2 Total: _____ / 10

Question 3. (5 MARKS)

3a. (1 mark)

```
int t0 = 5;
int x = 0;

while (t0 >= x) {
    ctr = ctr / 2;
    x++;
}
```

3b. (1 mark)

```
int t0 = 5;
int x = t0 + 10;

do {
    ctr = ctr / 2;
    x += -1;
}
while (x >= t0);
```

3c. (3 marks)

```
int *t1 = &B[ctr];
int *t0 = &A[ctr];

while (t0 < &A[v]) {
    int t2 = *t0;
    int t3 = *t1;
    if (t2 >= t3) {
        *t1 = t2;
        *t0 = t3;
    }
    t0++;
    t1++;
}
```

Q3 Total: _____ / 5

Question 4. (9 MARKS)

4a. Number of times: 9 (2 marks)

4b. Number of times: 1 (2 marks)

4c. Number of instructions: 69 (2 marks)

4d. Number of unique bytes: 18 (3 marks)

Q4 Total: _____ / 9

Total Marks: _____ / 37 (To be filled by TA only)