Members:

Balanon, Rovic	Custer, Mark John T.	De Ramos, Ghrazielle Rei A.	Gutierrez, Carlos Kristoffer P.	Ong, Barron

Binary-16 Floating Point Analysis

1. The first check that the programmers did was to check if the digits given were wholly binary numbers or wholly decimal numbers. 0-1 for binary numbers and 0-9 for decimal numbers. There should also be checking for the signs and decimal placement.

2. The second check that the programmers did was to check if the given number is base-2. If the given digits are not base-2 or are base-10. The programmers should convert the base-10 numbers to base-2.

3. The third check is to check if the base-2 numbers follow a 1. f formatting. The exponent should also be checked. Exponents greater than 15 are considered Infinity. Exponents less than -14 are considered Denormalized.

4. To get the E'. If E is Infinity then it is equal to E' = 11111, and if E is Denormalized then it is E' = 00000. E' <- E + 15, then E' should be converted to binary.
5. To get S: Check 1. f if it is less than 0, then S = 1. If it is greater than 0, then S = 0. If it is NaN then S = X.

6.. To get f: consider the 1. f binary number. For normal cases, remove "1" (or "-1") and "." in 1. f to get the f. Pad zeroes if necessary to reach 10 bits. If Infinity, f = 0000000000. If Denormalized, f is based on converted 1. f binary when 2^-14 (e.g. given 1.01x2^(-15), convert to 0.101x2^(-14) and f=1010000000). If NaN, then f = 01XXXXXXXX (signaling NaN).

7. After converting the given number to its Binary-16 floating point then the answer should be converted to Hexadecimal. Separate the binary codes 4 times with 4 bits each. Change the 4-bit binary to its respective Hexadecimal value. The javascript program caters to changing the binary to hexadecimal using parsing and converting the base-2 value to base-16. In the program, the binary converts to string so that the conversion is done without manual computation.