Code (Available at the end as text) :

```c
#include <stdio.h>
#include "fileTest.h"
void initFile();
void spaceCheck();
void SPICheck();
void spaceCheck();
void moveSPIandAppend();

int main(int argc, char *argv[]){
  initFile(); //create file and write
  spaceCheck(); //check if newline exists
  SPICheck(); //check for SPI position
  moveSPIandAppend(); //move SPI and append
}

void initFile(){
  char toAdd[] = "Hello\n";

  FILE *fptr = fopen("createdFile.txt","w");
  if(fptr==NULL){
    printf("Could not open file. \n");
  }else{
    fprintf(fptr,toAdd);
    fclose(fptr);
  }
}

void SPICheck(){
  FILE *fptr = fopen("createdFile.txt","r");
  if(fptr==NULL){
    printf("Could not open file. \n");
  }else{
    long fSize = ftell(fptr);
    printf("SPI is currently at offset %ld \n",fSize);
  }
  fclose(fptr);
}

void spaceCheck(){
  FILE *fptr = fopen("createdFile.txt","r");
  char buff[BUFSIZ];
  char cur = fgetc(fptr);

  while(cur!=EOF&&cur!='\n'){
    if(cur!='\n'){
      cur=fgetc(fptr);
  }
}
  if(cur=='\n'){
    printf("Yes, file contains newline.\n");
  }else{
    printf("No, file does not contain newline. \n");
  }
  fclose(fptr);
}

void moveSPIandAppend(){
  FILE *fptr = fopen("createdFile.txt","a");
  fseek(fptr,0L,SEEK_SET);
  char toWrite[] = "Goodbye CSCD240\n";
  fprintf(fptr,toWrite);
  fclose(fptr);
}
```

a) yes, it contains new line, as indicated by

```
C:\Users\Junyu Teoh\Documents\CSCD240\HW5>a.exe
Yes, file contains newline.
SPI is currently at offset 0
```

b) SPI's are always at the beginning, as indicated by

```
C:\Users\Junyu Teoh\Documents\CSCD240\HW5>a.exe
Yes, file contains newline.
SPI is currently at offset 0
```

c) It writes to the end. Append writes to the end of the file, regardless of SPI's location.

d) Yes. Similar to touch in unix systems, a file can be empty but still remain in existence.

Code:

```
#include <stdio.h>
#include "fileTest.h"
void initFile();
void spaceCheck();
void SPICheck();
void spaceCheck();
void moveSPIandAppend();

int main(int argc, char *argv[]){
  initFile(); //create file and write
  spaceCheck(); //check if newline exists
  SPICheck(); //check for SPI position
  moveSPIandAppend(); //move SPI and append
}

void initFile(){
  char toAdd[] = "Hello\n";
  FILE *fptr = fopen("createdFile.txt","w");
  if(fptr==NULL){
    printf("Could not open file. \n");
  }else{
    fprintf(fptr,toAdd);
    fclose(fptr);
  }
}

void SPICheck(){
  FILE *fptr = fopen("createdFile.txt","r");
  if(fptr==NULL){
```

```
   printf("Could not open file. \n");
  }else{
   long fSize = ftell(fptr);
   printf("SPI is currently at offset %ld \n",fSize);
  }
  fclose(fptr);
}

void spaceCheck(){
  FILE *fptr = fopen("createdFile.txt","r");
  char buff[BUFSIZ];
  char cur = fgetc(fptr);
  while(cur!=EOF&&cur!='\n'){
   if(cur!='\n'){
     cur=fgetc(fptr);
  }
}
  if(cur=='\n'){
   printf("Yes, file contains newline.\n");
  }else{
   printf("No, file does not contain newline. \n");
  }
  fclose(fptr);
}

void moveSPIandAppend(){
  FILE *fptr = fopen("createdFile.txt","a");
  fseek(fptr,0L,SEEK_SET);
  char toWrite[] = "Goodbye CSCD240\n";
  fprintf(fptr,toWrite);
```

```
  fclose(fptr);
}
```