PG - DESD
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Module – Embedded C Programming

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File IO

- File is collection of data and information on storage device.
- Each file have data (contents) and metadata (information).
- File IO can enable read/write file data.
- File Input Output
  - Low Level File IO
    - Use File Handle.
  - High Level File IO
    - Use File Pointer.
    - Formatted (Text) IO
      - fprintf(), fscanf()
    - Unformatted (Text) IO
      - fgetc(), fputc(), fgets(), fputs()
    - Binary File IO
      - fread(), fwrite()

High Level File IO

- File must be opened before read/write operation and closed after operation is completed.
- FILE * fp = fopen("filepath", "mode"); – to open the file
  - File open modes:
    - w: open file for write. If exists truncate. If not exists create.
    - r: open file for read. If not exists, function fails.
    - a: open file for append (write at the end). If not exists create.
    - w+: Same as "w" + read operation.
    - r+: Same as "r" + write operation.
    - a+: Same as "a" + append (write at the end) operation.
  - File can be opened as text file (default or suffix "t") or binary (suffix "b").
  - Return FILE* when opened successfully, otherwise return NULL.
- fclose(fp);
  - Close file and release resources.

File IO

- Character IO
  - fgetc()
  - fputc()
- String (Line) IO
  - fgets()
  - fputs()
- Formatted IO
  - fscanf()
  - fprintf()
- Binary (record) IO
  - fread()
  - fwrite()
- File position
  - fseek()
  - ftell()

Thank you!

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