Managing Projects with Uncertain Deadlines

Files

```
|- main.R
    |- generate_projects.R
    |- compare_strategies.R
        |- determine_project_properties.R
        |- calculate_completion_probability.R
            |- calculate_true_completion.R
            OR
            |- calc_acpa.R
```

Steps

1. main
    i. set seed
    ii. vary parameters
        - link density
        - variance of activity times
        - variance of deadline
        - baseline deadline (?)
    iii. generate projects (calls `generate_projects.R`)
    iv. compare crash strategies (call `compare_strategies.R`)
    v. record result
    vi. repeat
2. generate projects
    i. generate uTri binary network
    ii. draw activity mean and standard deviation times
3. compare strategies
    i. loop crash strategies
    ii. update activities accordingly
    iii. determine the path properties (call `determine_path_properties`)
    iv. calculate probability project completes on time (call `calculate_completion_probability.R`)
4. determine project properties
    i. identify paths from precedence matrix
    ii. loop through paths
        - calculate mean
        - calculate variance
        - determine correlations
5. on-time completion probability
    - this is either the `calc_acpa` function from the modified PERT paper or the true multivariate normal completion time
    - $P(max(G_1, .., G_n) \leq 0)$ where G_i is the difference between the completion time of path i and the deadline.

Citation: